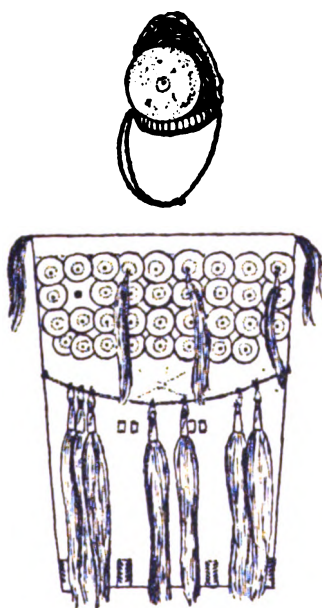


**GÖTEBORGS  
ETNOGRAFISKA MUSEUM  
ÅRSTRYCK  
1976**



**ANNALS**

**Omslagsbilden:**

**Sköld av läder med mässingsprydnader och rödfärgade hårtofsar. *Shield of leather with brass ornaments and redcoloured tufts of hair.* Assam. H. 67 cm. 76.13.2.**

**Kask prydd med mässingsplatta. *Helmet with brass disc.* Assam. H. 20 cm. 76.13.3.**

**GÖTEBORGS  
ETNOGRAFISKA MUSEUM**

**ÅRSTRYCK 1976**

ETHNOGRAPHICAL MUSEUM, GOTHENBURG, SWEDEN

Annual Report for 1976

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*Editor: Kjell Zetterström*

## BERÄTTELSE FÖR 1976

*Etnografiska Museets råd* har under året haft följande sammansättning: ordförande, fru *Anita Torwald*, vice ordförande, löneintendenten *Östen Angerås* samt ledamöterna docenten *Alf Björnberg*, ombudsmannen *Roy Gustavsson*, professor *Gunnar Harling*, fru *Irma Nääs*, ämnesläraren *Bertil Rugarn* och biblioteksrådet *Folke Ström*.

Rådet har sammanträtt den 3/9 och 2/12.

Vid årsskiftet lämnade *Anita Torwald*, *Östen Angerås*, *Alf Björnberg* samt *Folke Ström* rådet. Vi ber att få tacka dem för visat intresse och stöd under de gångna åren.

*Etnografiska Museets arbetsgrupp* har under året sammanträtt för att diskutera budget-, lokal- och andra planeringsfrågor samt för att besvara remisser.

Personalmöten har hållits 13 gånger, och utbildningen för museets personal har fortsatt. Undervisningen har bl.a. omfattat de basutställningar som är under omarbetning, d.v.s. Sydamerika och Indokina.

## FÖREMÅLSSTATISTIK

Under året har 25 samlingar om totalt 219 föremål registrerats. Av dessa har 170 köpts, 43 erhållits i gåva. Dessutom tillkommer 6 föremål som inte tidigare varit registrerade. Siffrorna inom parentes anger antalet föremål inom respektive område.

### AMERIKA

*Nordamerika* (6). Samling 76.2.1-5 har sålts av herr Björn Mathiasson, Göteborg. 76.2.1 är en korg, "trinket-basket" från hupa-indianerna i Kalifornien, och 76.2.2 är ett flätat fat från hopi-indianerna i Arizona. 76.2.3-5 är arkeologiska föremål. 76.2.3 är en skrapa från Louisiana och 76.2.4-5 är ett litet huvud i svart lera från Caluxhuaca resp. en liten ansiktsmask i lera från Cholula, båda kommer från Mexico.

76.10.1 är ett silverfat från navajo-indianerna i New Mexico vilket köpts av professor S. Henry Wassén, Göteborg. Fatet är av experimentell typ. Silver och koppar smältes samman så att övre ytan består av silver och bottenkiktet av koppar.

*Centralamerika* (1). Professor S. Henry Wassén har skänkt en groda av sten från Quiché i Guatemala, vilken fått samlingsnumret 76.19.1.

*Sydamerika* (20). Guaysero är ett lerkärl av tunn, svartgrå keramik som användes vid beredning och intagande av en stimulerande dryck som görs av blad från *Ilex Guayusa* (fam. Aquifoliaceae). Kärlet (76.4.1) kommer från jivaro-indianerna vid Tigrefloden i nordöstra Peru och har skänkts av professor S. Henry Wassén.

76.9.1-6 utgörs av arkeologiska föremål från Peru vilka inte tidigare varit katalogiserade.

76.25.13 består av etnografiska föremål från makuna-indianerna vid Pirá-Paraná, Vaupés, Colombia, vilka skänkts av fil.lic. Kaj Århem, Uppsala. Samlingen innehåller vapen, prydnadsföremål och hushållsredskap.

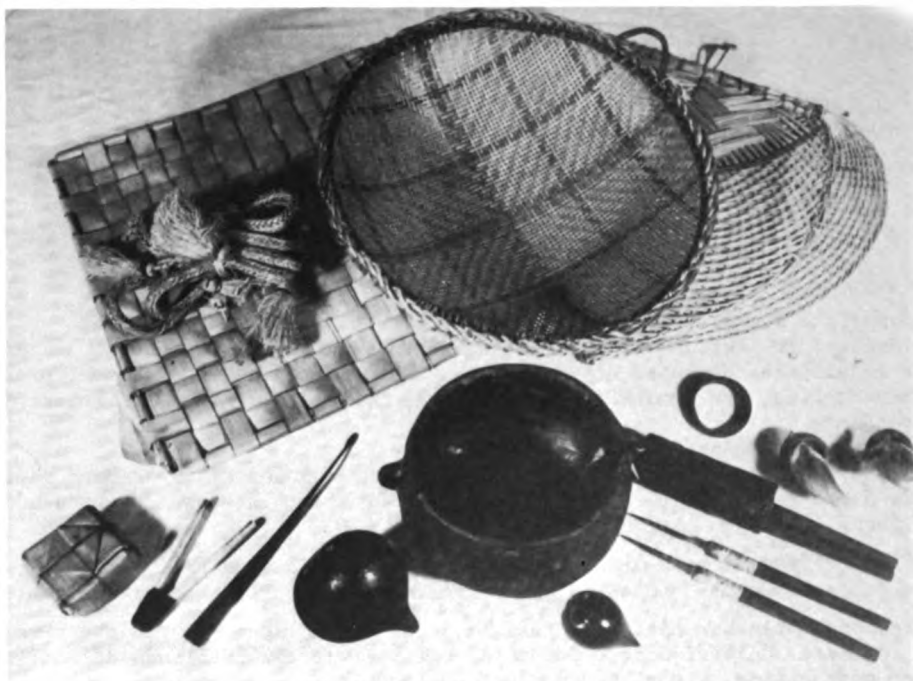


Fig. 1. Föremål ur saml. 76.25. Makuna-indianerna, Colombia. Objects from coll. 76.25. The Makuna Indians, Colombia.

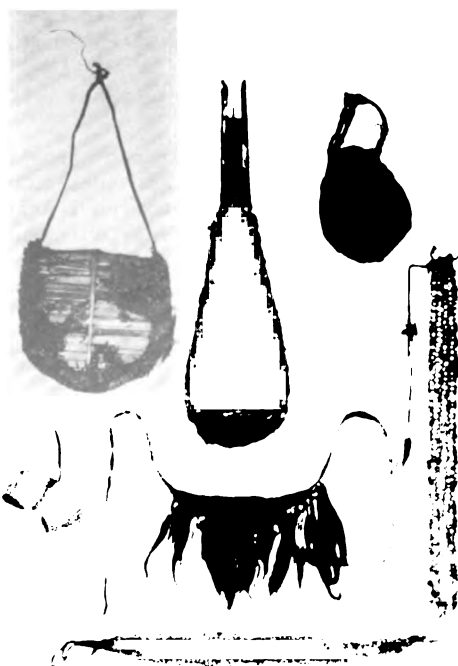


Fig. 2. Föremål ur saml. 76.17 och 76.22. Papua - Nya Guinea. Objects from coll. 76.17 and 76.22. Papua - New Guinea.

## AFRIKA (52)

76.5.1-25 är nyare föremål som inköpts till förskoleverksamheten.

76.7.1-5 är en samling masker från Nigeria och Kamerun. 76.7.1-3 föreställer djurhuvuden med långa, vridna horn och är från Ogoni, Port Harcourt. 76.7.4 är en sjukdomsmask med förvridna anletsdrag från Ibo, och 76.7.5 är en mask från Bamum, Kamerun.

76.12.1 är en medicinmansstav från zulu, Sydafrika, vilken förvärvats från herr Eric Svärdskog, Göteborg.

76.14.1 är ett ceremoniellt dryckeskärl av lera från kuba-stammen i Zaïre sålt av fru Anja Cederborg, Göteborg.

76.15.1-2 är ett par barnsandaler samt en kjol som bärs av de unga flickorna vid initiationsceremonierna. Föremålen är från Liberia och har skänkts av fru Lotten Zetterström, Göteborg.

76.16.1-12 innehåller två skulpturer från Elfenbenskusten, en kanotmodell från Sierra Leone samt en pall från Östafrika. Samlingen utgörs dessutom av vapen, korgar och musikinstrument från Indien, Australien och Söderhavet.

76.18.1-12 är arkeologiska stenredskap och benfragment från olika lokaler i Tanzania. Föremålen har skänkts av rektor Stig Lund-Jensen, Floda.

76.20.1-2 utgörs av en trämortel och en ölsil från Dar-es-Salaam, Tanzania, sålda av civilingenjör Sven Olofsson, Partille.

## INDIEN (43)

76.3.1-4 utgörs av masker och statyetter från Nepal och Sydindien, keramik-huvuden från Madjaparitriket på Java samt ett sidentyg av kinesiskt ursprung. Samlingen har sålts av fil.lic. Kurt Frankman, Göteborg.

76.13.1-4 utgörs av två sköldar och två hjälmar från Assam sålda av herr Eric Svärdskog.

76.21.1-23 utgörs av klädesplagg och skodon från Chamba-distriktet, Himachal Pradesh i norra Indien samt av smycken och en svit målningar som används vid det traditionella hindubröllopet i Chamba-distriktet. Förvärvade av herr Géza Nagy, Göteborg.

76.23.1 är en indisk schal skänkt av fru Lisa Dahl, Lidköping.

## INDONESIEN (8)

76.8.1-7 består av delar av batik- och bomullssaronger från Java, skänkta av fru Mira Fjaestad, Lidingö.

## PAPUA - NYA GUINEA (50)

Museet har detta år köpt två samlingar av etnografiska föremål från Papua - Nya Guinea av herr Karl W. Ströder, Parkville, Australien. Bland föremålen i samling 76.17.1-25 kan nämnas ett regnskydd av blad från Pandanuspalmen, en trumma, peruk, korgarbeten, skallra, ländkläden, bärnät, mössa, bröst- och huvudprydnader, rökipor, munharpa, bambukniv, medicinsk bark samt en näs-prydnad. I den senare samlingen, 76.22.1-25, förekommer bl.a. personliga prydnader såsom pannsmycke, armband, fjäderprydnader, näsprydnader, halsband av kaurisnäckor, klädesplagg samt huvudpall och verktyg av ben.

## SÖDERHAVET (9)

76.1.1-6 är en samling etnografiska föremål från Samoa skänkt till museet av fru Erna Johansson, Svenshögen. Bland föremålen kan nämnas ett basttyg (tapa) och två bastkjolar med snäckprydnader.

## AUSTRALIEN (19)

76.24.1-15 utgörs av klubbor, sköldar och bumeranger sålda av herr Eric Svärdskog.

## SAMER (11)

76.6.1-11 är en samling nyare föremål som inköpts för förskoleverksamheten.



Fig. 3. 76.14.1. Ceremoniellt dryckeskärl av lera från Kuba, Zaïre.  
Ceremonial drinking-vessel of clay from Kuba, Zaïre. H. 17 cm.

Fig. 4. 76.12.1. Medicinmansstav från Zulu, Sydafrika. Medicinman's staff,  
Zulu, South Africa. H. 190 cm.





Fig. 5. 76.13.2. Sköld av läder med mässingsprydnader och rödfärgade hårtofsar. Shield of leather with brass ornaments and redcoloured tufts of hair. Assam. H. 67 cm.

76.13.3. Kask prydd med mässingsplatta. Helmet with brass disc. Assam. H. 20 cm.

## BIBLIOTEK, ARKIV OCH KATALOGER

*Referensbiblioteket* har i år ökat med 520 katalognummer (22.497-23.016) varav genom köp 144, byte 258, gåvor 115 och egen produktion 3.

Institutioner som bidragit till biblioteket är British Academy, London, Etnografiska Museet, Stockholm, Ministeriet för utrikes ärenden, Helsingfors, Moesgård Museum, Højbjerg, Riksarkivet, Riksställningar, Svenska Institutet samt US Embassy och Information Service, Stockholm.

Enskilda givare är dr. Jan G. Bruhn, Stockholm, Sr. Ricardo Campo, Mr. Anthony Cambry, Uppsala, Sr. Eduardo Arcila Farias, dr. Günther Hartmann, Berlin, professor Folke Henschen, Stockholm, Sr. Olaf Holm, Guayaquil, Ecuador, Mr. James Huddleston, Uppsala, museiintendent Sven-Erik Isacson, herr Allan Jonsson, museiintendent Dagmar Selling, Göteborg, herr Karl W. Ströder, Parkville, Australien, professor S. Henry Wassén, fil.dr. Harald Widéen och musei-chef Kjell Zetterström, Göteborg.

*Bildarkivet* visar en ökning med 417 bilder (19.063-19.479).

*Negativarkivet* har under året ökat med 381 katalognummer (11.433-11.813).

*Skiptikonarkivet* har tillförts 82 diabilder (2.919-3.100).

*Kartarkivet* har ökat med 1 nummer (370).

*Diskoteket* har ökat med två nummer (512-513).

*Pressklipparkivet* har under året ökat dels genom egen pressbevakning, dels genom gåvor.

## MUSEAL VERKSAMHET

### UTSTÄLLNINGAR

*"Etiopien - utveckling och underutveckling"* visades på museet fram till den 19/9.

Den 6/1 öppnades vandringsutställningen *"Svensk Mission under 100 år"*. Denna utställning, som arrangerats av Svenska Missionsrådet, hade i Göteborg utvidgats och kompletterats med museets egna samlingar vilka skänkts av missionärer. I anslutning till utställningen visades Sven Nykvists film *"Kallelsen"*. Utställningen togs ner den 7/3.

Under tiden 3/5 - 21/9 visades museets utställning *"Karibu - Tanzania"* på Landskrona Museum.

I Göteborgs Historiska Museums utställning *"Utvandraröden"* deltog museet med avsnitt från asiatiska Sovjet, Afrika, Australien och Sydamerika. Utställningen varade från den 21/5 till 5/9.

I samband med Museernas dag den 3/10 invigdes utställningen *"Tawantinsuyu - en inkadömling skildrar aymara-indianernas liv i Bolivia"*. Utställningen utgjordes av ett antal målningar av aymara-indianen Eusebio Topooco. I samband med invigningen berättade Topooco om indianernas liv. Sista dagen för utställningen var den 7/11.

Moderniseringen av basutställningarna har fortsatt under året. *"Indokina"* och *"Risodlare"* har påbörjats och *"Indokina"* beräknas bli klar under 1977.

Renoveringen av utrymmena för *"Sydamerikas etnografi"* är i det närmaste klar. Bl.a. har ny belysning installerats och ett stort antal montrar har byggts, delvis av museets egen personal.

### SKYLFÖNSTER ETC.

Centralstationens gångtunnel:

26/1 - "Människor från hela världen".

Posten, Göteborg 2:

11/2 - 26/10 "Hur gör man lerkärl utan drejskiva?"

1/11 - "Gudar från Tibet"

N. Hamngatan 12 (2 fönster):

- 19/3 "Chi-wara från Bambara"

29/1 - 9/4 "Araber i Mellanöstern"

11/4 - 25/10 "Persiska vapen"

15/4 - 13/6 Skyltning för utställningen "Indianernas Vilda Västern"  
 24/6 - 10/11 "Ett 100-årsminne. Striden vid Little Big Horn 1876"  
 1/11 - "Föremål från Burma"  
 15/11 - "Träskulpturer från Västafrika"  
 18/6 - 15/8 Indianföremål i Informationscentralens skyltfönster,  
 Kungssportsplatsen  
 1/8 - 21/11 "Persiskt". Föremål ur Hybinettes samling från 1882 i  
 trapphallen.  
 3/10 Museernas Dag.

#### UTLÅNING AV FÖREMÅL M.M.

Göteborgs Arkeologiska Museum, Göteborgs Historiska Museum, Röhsska Konstslöjdmuseet, Borås Museum, Kulturhuset, Stockholm, Sveriges Radio, Göteborg, Biomedicum, Uppsala Universitet, Arkeologiska institutionen, Göteborgs Universitet, Religionsvetenskapliga institutionen, Göteborgs Universitet, Lärarhögskolan, Mölndal, Folkhögskolan i Mariannelund, Seminariet för huslig utbildning, Umeå, Karl Johanssskolan, Göteborg, Svartedalsskolan, Göteborg, Korsåsgårdens Fritidsgård, V.Frölunda, utställning i Bergsjön gemensam för Göteborgs museer, Tuve Stadsbibliotek, Göteborg, Mormonkyrkan, Göteborg, firma Regiment, Göteborg.

#### PERSONALIA OCH ÖVRIG VERKSAMHET

##### PERSONAL

Museichef	Kjell Zetterström (tjänstledig 2/2-16/3)
Intendent Amerikas indian-kulturer	Sven-Erik Isacsson
Intendent Afrika, Asien etc.	Vakant
Extra amanuenser	Gun Hellqvist (tjänstledig 1/4-31/12) Carl Axel Silow (f.o.m. 19/8)
Kanslist	Maj-Britt Berglund
Bibliotek och dokumentation	Michael Cornell Christer Feiff (f.o.m. 20/9) Rojza Sznajdman
Foto, teckning och utställningar	Britt-Marie Johansson (f.o.m. 15/11) Margareta Jonsson (f.o.m. 15/11) Stein Lango Marianne Michaëlsson (1/2-31/8) Ingrid Midsem
Konservering och verkstad	Alf Bergström Evert Berndtsson Gustaf Henriksson Gunilla Sonnhagen Olle Svartholm
Magasin	Yngve Brink-Wall Roland Kock Sven-Erik Roth

##### ÖVRIGT

Antalet besökare i Ostindiska Huset (gemensamt för tre museer) har under året varit 134.544. För etnografiska museets del har besök av 12.332 skol elever registrerats. Totalt har museet besökts av 635 klasser varav 198, omfattande 4.440 elever, har kommit från annan kommun än Göteborg.

##### PUBLIKATIONER

Isacsson, Sven-Erik	<i>Biografía Atrateña. La formación de un topónimo indígena bajo el impacto español (Chocó, Colombia).</i> Indiana nr 3, Berlin 1975.
---------------------	--

- Isacsson, Sven-Erik      *EMBERA: Territorio y régimen agrario de una tribu selvática bajo la dominación española*. N.S. Friedemann (ed.): Tierra, Tradición y Poder en Colombia. Bogotá 1976.
- "                              "      *Observations on Chocó Slash-Mulch Culture*. Göteborgs Etnografiska Museum, Årstryck 1975:20-48. Göteborg 1976.
- Silow, Carl Axel      *Edible and Other Insects of Mid-Western Zambia*. Uppsala 1976.
- Wassén, S. Henry      *Un estudio arqueológico en la Cordillera Occidental de Colombia*. Cespedesia Nos. 17-18: 9-38. Cali 1976.
- "                              "      *Was Espingo (Ispincu) of Psychotropic and Intoxicating Importance for the Shamans in Peru?* Pp. 511-519 i Agehananda Bharati (ed.), *The Realm of the Extra-Human: Agents and Audiences*, 1976, Mouton: The Hague, Paris.
- "                              "      *Estudo etnobotânico de material Tiahuanacóide*. Pp. 135-149 i Vera Penteado Coelho (ed.): *Os alucinógenos e o mundo simbólico*. São Paulo 1976. Apêndice: *Notas sobre a anatomia do "espingo" e das sementes de Quararibea* por Wolmar E. Bondeson (pp. 150-155).
- "                              "      *Uma coleção de naturalista perdida com material etnográfico do Brasil ou O caso de 1786. Contribuição ao estudo de drogas dos índios sul-americanos*. Pp. 157-176 i Vera Penteado Coelho (ed.): *Os alucinógenos e o mundo simbólico*. São Paulo 1976.
- "                              "      *Förföljt av katastrofer*. Utlandsspeglarna, Göteborgs-Posten 12.2.1976. Göteborg.
- "                              "      *Etnografen Erland Nordenskiöld (1877-1932), sydamerikaforskare av världsrykte i Göteborg*. Föredrag på högtidsdagen i Travellers' Club i Göteborg den 28 oktober 1976. Stencil, 6 pp.
- Zetterström, Kjell      *Berättelse för 1975*. Göteborgs Etnografiska Museum, Årstryck 1975:3-15. Göteborg 1976.
- "                              "      *Report from Liberia*. Göteborgs Etnografiska Museum, Årstryck 1975:16-19. Göteborg 1976.
- "                              "      *The Yamein Mano of Northern Liberia*. Uppsala 1976.

Ett varmt tack riktas till Wilhelm och Martina Lundgrens Vetenskapsfond, som givit bidrag till tryckningen av docent Carl Axel Silows uppsats.

Omslagsbilden har ritats av museets tecknare Stein Lango. Fotografierna har tagits av konservatorsassistent Olle Svartholm.

Göteborg i december 1977

KJELL ZETTERSTRÖM  
Museichef

# WIFE POWER MEDICINES AMONG THE NKOYA OF MID-WESTERN ZAMBIA

## A contribution to the anthropology of marriage

by Carl Axel Silow

### PREFACE

The following notes on wife power medicines were collected at random during my fieldwork July 1972 - March 1973 in the Nkoya country, Kaoma District, Western Province, Zambia (formerly Mankoya District, Barotseland). It is merely a question of scraps of information, obtained from ordinary villagers, primarily from women, living in different localities of the Nkoya chiefdoms Mutondo and Kahare. In this essay I am focusing my attention on medicines used by wives to treat their husbands or rivals in order to preserve or restore the balance within the marriage. Some of the medicines may also be utilized for other purposes than those presented here and by other persons than married women. Only a few remarks on men's medicines of special interest to my main theme are included. Nkoya medicine doesn't differ in its essential features from that of their neighbours, the Lozi, Luvale and Ndembu (see e.g. Reynolds 1963, C.M.N. White 1963, Turner 1967).

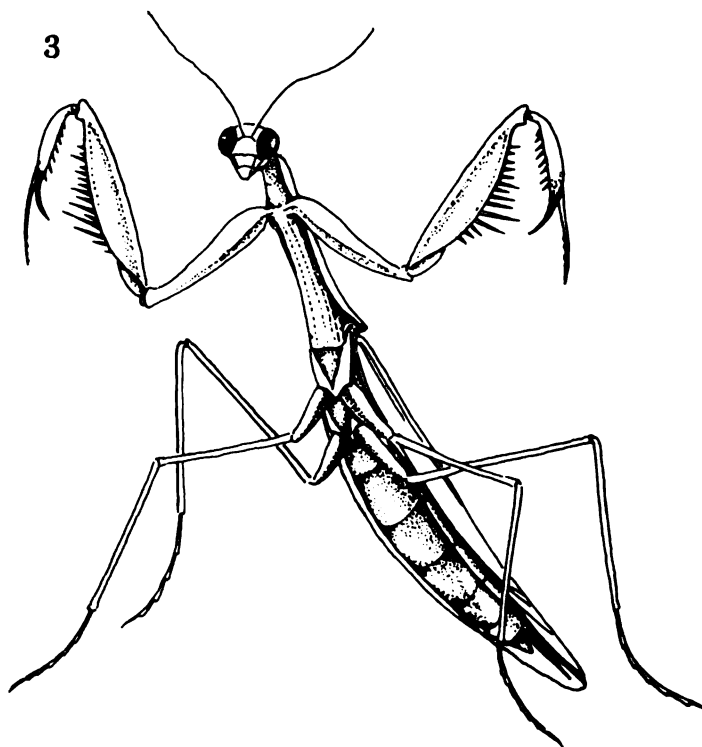
The Nkoya are a people of matrilineal and virilocal swidden cultivators, principally inhabiting little fertile *Julbernardia paniculata* country on Kalahari Sands in the Luena river area, and representing an early and little studied Bantu migration. McCulloch 1951 sums up the meagre and partly erroneous information about them. Trapnell & Clothier 1938, Clay 1945, Symon 1959, Silow 1976 have published papers dealing with various aspects of Nkoya agriculture, Nkoya history, Nkoya herbalists' medicines, and Nkoya ethno-biology, respectively. They are divided into a number of exogamous matriclans and live in small, semi-permanent villages. Hunting, fishing, and gathering are important but subsidiary. Their culture and language have been heavily influenced by the Lozi, by the Mbunda and other immigrants from Angola, and by the Kaonde and other neighbouring peoples. The Nkoya language has deteriorated into a mixture of Lozi, Mbunda, Kaonde, and Nkoya words with Nkoya pronunciation. With their identity menaced, many Nkoya have grown nationalistic.

A medicine used with a good purpose in view is called *shitumbo*; a medicine used to injure a relative is called *wanga*. A person using *wanga* medicines is regarded as a *muloyi* (witch, sorcerer). Practising witchcraft or sorcery is considered a very serious thing. If there has been e.g. an unexpected death in a village, a person suspected to be a *muloyi* may be killed. According to the Witchcraft Ordinance laws, a mere knowledge of *wanga* recipes may be enough to send a person to prison (see Reynolds 1963, 166 f). Thus most of my informants were afraid of admitting deeper cognizance of any *wanga* use of medicines discussed.

### INTRODUCTION

#### Everyday life

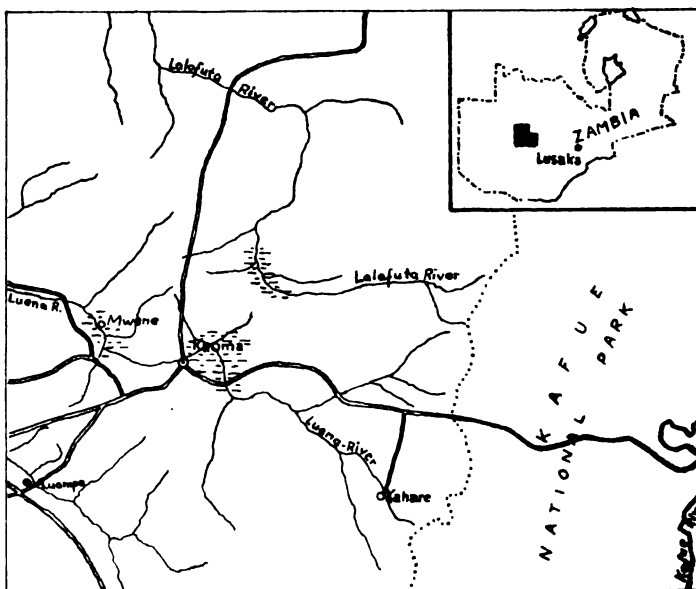
An ordinary day in an ordinary Nkoya village the women wake up to pound meal at dawn. After breakfast at about 6 o'clock, men and women together walk out to work in the fields for perhaps five or six hours. In the afternoon small groups of women are busy gathering food in the surroundings, preparing it and fetching water. Some young fathers bathe themselves and their children in the river and wash their clothes. An old couple rest outside their house in silence. Some men are probably seated on foot-stools and chairs in the *nkuta* - an open shelter in the middle of the village - where men talk things over, drink beer, roast tid-



1. Medicine container made of a Tenebrionidae beetle shell
2. The mason wasp's nest on the house wall is used as a fumblingness medicine
3. The mantis is used as an ingredient in love medicine

The Upper Luena river area

1:1,500,000



bits over the fire, repair tools. Now and then they turn to the women nearby to ask their opinions, or a listening woman interrupts with criticism, an acclamation of approval or a complementary addition.

The men spend the evening in the *nkuta* and eat the evening meal together from a common dish. Women and children eat in small groups, each household on its own. In large villages the women are mostly not admitted to the *nkuta*, where often a good deal of woman-hostility is prevailing.

#### Male attitudes towards females

When I arrived as a stranger in a village, I was invited to the *nkuta*. After some time, when I had made friends with the villagers, I could walk around on my own and interview a woman without interference of the men. As a rule, however, it was considered a natural thing that I should be primarily interested in the knowledge and views of the men. Thus inquiring in the *nkuta* about the relations between the sexes, I often got answers as "God (*Nzambe*) has given men and women different characters", "The men belong to the *nkuta*, the women to the kitchen-fires", or "A woman should obey her husband, otherwise he has a right to beat her". In more penetrating discussions the men would explain that a husband may often be on friendly terms with his wife, but you should never have too much confidence in a woman, because she will readily try to dominate you or deceive you, and she has very powerful means to enforce her will.

On the whole I got the impression that the Nkoya men consider the women to be strong rather than weak. It is not an uncommon thing to hear a man express fear of women and especially of the women's proficiency at mixing medicines for treatment of their husbands. My male informants agreed that their tongues and their medicines are the women's best weapons. The women's medicines are more dangerous than any others, they said, as a wife knows all the ways and habits of her husband. Men who had got acquainted with me and put confidence in me would sometimes reveal that they suspected the women of practising sorcery. Others, particularly those who were alarmed about a possible connection between me and the Witchcraft Ordinance, argued against this accusation.

The Nkoya men told me that the girls are innocent up to their puberty rites (*nkanga*). After the *nkanga* they are smart and unreliable, having learnt to keep together and use medicines against the interests of the men. To the men's regret they themselves lack initiation rites and do not, they say, have the same amount of medicines at their disposal. The men sometimes made various more or less wild conjectures about the true nature of the women's medicines. Unfortunately, they explained to me, a man never knows anything for sure about these matters, as the women keep their recipes secret.

The two Nkoya doctors with whom I discussed the question, declared that they pretty well knew what the women mix together. However, it remained unclear to me if this was true or not, as they did not want to give me any further details. They seemed to represent two different modes of reaction on these medicines. One of them condemned them as means of sorcery, and said that he would never sell anything of the sort. The other told me that they are useless or too weak, and said that he could procure the right medicines if only the women had brains enough to consult him.

During my efforts to learn more about women's medicines from the men, I often remembered the remark of Gluckman (1955 p. 135) discussing Lozi men's ideas about the customary ways of women: "Here men are arguing in terms of what they believe women do and what women's customs are, and I cannot say whether their presumptions are sound or not."

#### Female attitudes towards males

Married life starts when the wife settles in her husband's village. The interviewed Nkoya women agree that most marriages are happy. They also agree that even the best and most beloved husband possesses some imperfections, but this is the order of God. Every wife must reckon with temporary afflictions, but if she just fulfils her duty - collects food and cooks well, works in the fields, etc. - they will pass, and felicity will return.

The young Nkoya girls describe the ideal mate as a light-skinned, tall,

muscular young man, who earns much money and buys fine gifts. He should be kind-hearted and faithful and not want more than one wife. His opposite is a small, soot-black, bad-tempered old polygamist. Older Nkoya women emphasize more the qualities of being industrious, diligent, and considerate.

Laziness is ranked as the worst of male vices by my female informants, because, they said, it threatens the well-being of the wife and her children. They observe that an idle husband will probably possess other vices too. He will not even clear the ground when it is time to shift cultivation from one place to another. His family will go hungry.

Unfaithfulness was often mentioned as the second worst thing that can afflict a woman's marriage. According to Nkoya law a man but not a woman is permitted to have extramarital love-affairs. Many acts of adultery will lead to a second marriage, or, especially if the man has slept with one of those women selling their bodies for beer in the beer halls, to venereal disease.

As a rule a polygamous marriage is an evil and an emotional catastrophe for the first wife, explained the women to me. Although custom and law assert that the two wives shall be treated in the same manner, this is rarely the case. He will favour the second wife, who is younger and more attractive. He will spend more time with her, caress her more, give her more meat, cloth, and tobacco, keep her house in better repair, and hoe more in her cultivations. He will visit his first wife more for beer and food than for his love to her. The jealousy and enmity developing between co-wives is proverbial.

Other frequently mentioned vices are:

Wife-beating. Some wives say that their husbands often threaten them with a beating. Custom and law permit a reasonable amount of wife-beating, at least if the wife has committed an offence, e.g. adultery. Elders protect the women of the village from being too badly treated. A wife-tormentor runs the risk of losing his wife, who will elope to the Copperbelt towns or apply for a divorce.

Jealousy. Some men continuously spy on their wives, suspecting them of adultery. Even a completely faithful woman may be subjected to this.

Deceitfulness. A sponger wanting to take part in a feast will often, I was told, cheat the entertainers with the prospects of sharing the many calabashes of beer at his place. When the guests arrive, there is nothing to be had. The swindled visitors will be very angry with him, and give him a sound thrashing. He in his turn will lay the fault on his wife.

Drunkenness. The wife of a drunkard will have a very difficult life.

#### Wife's medicines

My female informants agreed that the natural thing to do, if one's husband is lazy or unfaithful, or if he has any other troublesome vice, and if one does not succeed in influencing him by persuasion, is to try some secret medicine upon him (or upon one's rival). What other means are there at a woman's disposal, they asked, remarking that the men are physically stronger and that the law, created by the men, circumscribes a woman's freedom of movement much more than a man's. Yet, only a minority of the women admitted that they had made an attempt to treat a husband or a rival with a medicine. Everybody, however, knew of many other wives who had been more courageous, and everybody was acquainted with the composition of at least some of these medicines.

All the women with whom I discussed these matters stressed that most of their medicines are *shitumbo* medicines, not *wanga* medicines, as the men often say. However, giving one's husband a medicine that makes him seriously mad or ill without very strong reasons is sorcery, I was told.

It was conspicuous that the Nkoya women put a great confidence in their medicines. They optimistically interpret any sign of change coming sooner or later as an effect of an administered medicine. A failure may have many causes and is regarded as a normal thing. If one really does want a result, one just tries again.

The women confirmed the men's opinion that a girl learns about the medicines during her initiation, but emphasized that mothers and other female relatives of a young woman, as well as those of her husband when she gets married, go on teaching her about possibilities to influence a husband's will and behavior



until she is fully trained. I was told that the women are not allowed to reveal the secrets of the initiation to any member of the opposite sex. Trespassing against this prohibition is supposed to bring about very serious sanctions - death or leprosy - by female ancestors. Although the men are aware of this, they often try to interrogate their wives and sisters, e.g. about their medicines, complained my informants. One husband even committed the heinous crime of beating his wife, when she did not appease his curiosity. The women pointed out that they do not know more about men's medicines than the men know about theirs.

An ordinary housewife does, on the whole, not possess any medicines working from a distance, and so she must bring her medicine secretly into contact, the closer the better, with the person she wants to treat. This is a difficult task. If the medicine is discovered, it will lose its power. If she is unmasked, she may be appointed a *muloyi*. Thus the attack must be well-prepared.

The women say that a man is best treated when he is tired and hungry after heavy work. Then he will empty the pot, into which his wife has put her medicine, without noticing that she does not touch the food.

It is more difficult to get at a rival. One possibility is to visit her house under some pretext and contaminate food, drink, tobacco, or hide the medicine in the thatch, on the hearth, in a crack in the wall. The granary should be avoided, because powerful anti-trespasser medicines will lure there.

When a woman finds that her medicine has been discovered, she will make another try, if she is not too scared. This time she will perhaps put the concoction into the shell of a *kambombo*-beetle (*Tenebrionidae* spp.). This shell will make her victim forget to look for dangerous things that are smuggled into her home. Otherwise anybody who suspects witchcraft will search her house scrupulously.

In order to make sure that the chosen person and nobody else will be affected by a secret medicine, it ought to include some particle from the victim's body or house. This is best arranged by night, when the rival wakes up and sneaks off to the outskirts of the village for a while, or when the village is deserted e.g. at harvest time or during the initiation feasts.

Some but not all interviewed women stressed the necessity of accompanying the preparation and administration of some medicines with certain vocalized or thought words or formulae.

In the following I have classified the women's medicines into four groups.

- I. Medicines for influencing positively the relation between husband and wife.
- II. Medicines for influencing negatively the relations between husband and other women.
- III. Medicines for keeping wife's adultery secret.
- IV. Medicines for obtaining a legal ground for divorce. Finally I have added some remarks on husbands' reactions when they suspect that their wives use medicines on them.

#### I. MEDICINES FOR INFLUENCING POSITIVELY THE RELATIONS BETWEEN HUSBAND AND WIFE

##### Reversal medicines

If a husband shows a tendency to develop permanently any of the vices of laziness, adultery, wife-beating, jealousy, deceitfulness, drunkenness, etc., or if he is stubbornly adverse to something his wife eagerly wants, e.g. a cement floor, she knows how to cure him and bring him around. Catch a *Chrysops* fly (*Tabanidae*, *Diptera*) (*shikundumbunge*), cut a piece of a polypore (*Polyporaceae*) (*nkumbwa*) growing on the *Burkea africana* tree (*kaburweburwe*), kill an owl and remove its heart (*mutima*), take a piece of a root from any uprooted tree or plant. (Formerly only finger millet was used, but today finger millet is no longer cultivated). Pound, dry, and mix the ingredients into a powder. Hide the medicine in the husband's food, drink, or tobacco, put it on his footstool, or rub it into his skin when his stomach is distended with beer and needs the customary gentle massage.

"*Shikundumbunge* is used because it changes its mind, and so the mind of the husband will change", the Nkoya women explained to me, and:

"*Nkumbwa* is used because it eats and penetrates into the very strong heart of the *kaburweburwe* tree, and so the husband's mind will be penetrated".

"An owl's heart is used because the owl is a night bird that does not fly by day like the other birds. The difference between the man before and after the treatment will be as great as the difference between day and night".

"The uprooted plant is used because the husband's mind is to be uprooted".

The villagers have observed that the blood-sucking fly in question sometimes behaves in a strange way. It inserts its up to c. 1 cm long sucker into the tough human skin. Then it tries to draw itself back but fails and its head wriggles off. The head is left attached to the skin, while the body falls down. According to the interpretation of the Nkoya, the fly has simply changed its mind. *Shikundumbunge* is a Mbunda word with the literal sense "heart-uprooter" (*mbunge* - heart, mind). The polypore represents to the Nkoya penetrating power. Owls are considered to be very useful in medicine. The scarcity of owls around the villages, although there are suitable nesting-trees, indicates that a heavy toll is exacted for medical purposes.

Wives readily tell each other about the good results of this treatment. They point out a former notoriously lazy man, who now cultivates the largest plot and builds a mud-brick house. They give an account of how a man's old mother who slept in a shack open to the rain and winds now sleeps in a neat new house. They report on drunkards who became members of the teetotalistic Watchtower sect, on hen-pecked former wife-beaters, and on exadulterers. They know of husbands who have finally bought cement for a floor instead of a radio, or a corrugated roof instead of a useless gramophone.

Any sudden and extreme change of behavior is attributed to some medicine rather than to a natural cause. If a man is unexpectedly altered, the villagers will often suspect that his wife has treated him.

Certainly this medicine may help a wife to pick up her courage, conceptualize her marital troubles, and set about changing things to the better.

#### Oblivion medicines

A woman who has quarrelled with her husband or committed some other folly and now fears his revenge, may resort to an oblivion medicine.

She should dig up part of a root of the tree *Ximenia americana* (*muburama*), scrape off its skin, dry and pulverize it, mix the powder with dew (*mume*), and slip it into the husband's food. He will forget her blunders, and behave in a normal way.

"*Muburama* will make him forget his bad intentions", my informants said, and:

"*Mume* will make his memory of those bad things disappear like dew".

It is a current opinion among the Nkoya that *X. americana* has the power to give oblivion. My informants told me that their ancestors found that they forgot their intentions when they rested under this tree.

Another very efficient medicine consists of roots of the trees *Ximenia americana* (*muburama*), *Heeria reticulata* (*mubuma*), and *Xylopia odoratissima* (*murirera*), which are dug up, dried, and mixed with a dried stick-insect (*Phasmida*) (*tetamarwa*). The powder is stirred into vaseline (bought in the shop) or any other kind of oil, and kept in a jar or bottle. The woman should rub the ointment into her skin at dawn. Her husband, and also all other persons who meet her that day and inhale the smell of the medicine, will remember only her good deeds and merits.

"*Muburama* will make him forget", say the Nkoya women, and:

"*Murirera* makes you attractive for others".

"*Mubuma* will drive away bad, unkind and revengeful feelings".

"*Tetamarwa* kills any grudge or aversion against you".

*H. reticulata* roots are owing to their bitter taste used by the Nkoya in several medicines for driving away illness. The flowers of *X. odoratissima* attract bees in great numbers and are a symbol of attractiveness. The stick-insect which is an omen and symbol of death is used in several medicines by hunters, doctors and sorcerers.

When a wife has committed an offence against her husband, and he seems to

take no notice, the village women say that she has used some of these medicines.

A person's reactions to the deeds of his neighbour depend to a great extent on the attitude and behavior of the perpetrator. As it is probable that a woman who has used an oblivion medicine in which she has confidence will probably conduct herself in a more natural way instead of adopting a sinner's guilty and provocative look, one may conclude that these medicines will work in some cases.

#### Dominance medicines

Although law prescribes that a married woman should be obedient to her husband, wives often discuss different ways to enforce their will when their husbands are stubborn. One possibility is medical means.

A woman wanting to dominate her husband may collect the heart of a python (*mboma*), hen's tail-feather, and a part of the bushy plant parasite *shishi* (unidentified) from the *Burkea africana* (*kaburweburwe*) or *Baphia obovata* (*mubunde*) trees. The ingredients are burnt, and the powder is stirred into a mug of beer. The drink is given to the husband, who will become very timid and follow his wife both physically and mentally wherever she goes.

The Nkoya women explained the principles behind the treatment thus:

"*Mboma* is used because its joints follow each other wherever the snake wriggles, and so will the husband follow his wife".

"The hen's feather is used to make him timid like a hen".

"*Shishi* eats and penetrates the heart (*mutima*) of strong trees, and in the same way the will of the husband will be eaten and penetrated".

Some Nkoya eat the python, so the housewife may take the opportunity when she prepares the snake. Plant parasites play an important role in the Nkoya pharmacology, especially in sorcery.

If a wife wants her husband to fear her, she should hide a piece of the fleshy knob forming the base of a bird's tail-feathers in the meat he consumes. The Nkoya say that a person who eats this part of a bird will become a coward.

A dominance medicine may give a wife the necessary self-confidence to win a struggle for power with her husband.

#### Love medicines

After some time of happy married life a husband often ceases to fondle with his wife. Suddenly he does not listen so attentively to her any more. Complaints about her cooking and proficiency as a beer brewer are getting to be a common thing. He deserts her more and more for the company of the village men. The couple have their first violent quarrels.

If the wife desires her former happiness back, she collects a dung-beetle (any species) (*ritutatuzi*), digs up a root of the tree *Ximenia americana* (*muburama*), the yellow root of a chili plant (*Curcuma*), and collects the red fruit of a garden pepper (*Capsicum*). These ingredients are dried, powdered, and mixed into a medicine, which is administered to the husband's porridge. He has hardly swallowed his meal before he starts to caress his wife.

"*Ritutatuzi* is used because it clings to its ball of dung, dandles with it, and rolls it along unable to part from it. A loving husband treats his wife in the same way", my informants explained to me, and:

"*Muburama* will make the husband forget his coldness and bad behavior".

"The peppers are hot and will heat the husband's blood and feelings".

The Nkoya regard the dung-beetle as a symbol of love and affection. The fact that the dung-beetle defends its ball of dung against anybody approaching it is a token of jealousy, and jealousy originates from passion, they say. I was told by my female informants that they sometimes test the devotedness of their husbands by flirting with other men. Only a husband whose love is dead will remain unconcerned. *X. americana* is a symbol of forgetfulness (cf. Oblivion medicines).

A group of drunken women observed, bursting with laughter, that it is very important that this medicine is delivered when the husband and his wife eat in privacy. Otherwise the treated portion of porridge would get mixed into the common dish of the village men. The consequences of such a mistake would be extraordinarily comic.

Another recipe advises the woman to catch and kill a mantis (Mantodea) (*kaburamboko*), dry it, mix it with fat or oil of any kind, and rub the solution into the skin all over her body. Her husband will clutch her fervently and tenderly and won't let her go.

I received the following explanations:

"*Kaburamboko* is used because it grasps tightly and vigourously".

"*Kaburamboko* is a great lover".

The mantis' first pair of legs are developed into a weapon similar to two spiked clasp-knives operating in stilette fashion. The prey is held in a deadly embrace while eaten alive. The Nkoya know very well that the hugged insect (e.g. a bee) is to be devoured. Yet they often leave this fact out of consideration and compare the mantis to an affectionate lover, pointing out that it really resembles a man caressing his sweetheart.

The dividing line between cosmetic beautifiers, perfumes etc. on the one hand and love medicines on the other is somewhat diffuse. Discussing love medicines, some women told me that an excellent way to attract a man is to rub some sweet-scented vegetable substance into one's skin. Castor oil mixed with the crushed flowers of *Cryptosepalum pseudotaxus* (*mukue*) is very effective. Another possibility is washing one's face with water in which the same kind of *mukue* flowers have been soaked. However, this is perhaps not the best thing to do if you want your husband to love you, because the consequence will be that "swarms of men gather around you, just as swarms of bees gather at the flowering *mukue* tree".

Nkoya women often asked me for European medicines to lighten their skin (i.e. for skin creams).

Older women rely more on the appetizing smell from a pot of boiling relish and the clean smell from a well-kept house, promising comfort. They say that if your husband doesn't care for you as you want him to, there is certainly reason for you to reflect upon your interest for and care of the household duties.

The Nkoya men allege that the women certainly have special medicines for seducing a husband into adultery. How can you otherwise explain the fact that even dignified elderly men commit the crime of adultery? My female informants denied any knowledge of such medicines, and declared that why should they want a man to deceive his wife? As a matter of fact the men are mostly to blame in such matters. Besides, the Nkoya women do not need medicines to attract lovers they said. And if they know of such medicines, they use them in order to please the attendant young men when they are still unmarried girls, or in order to induce an indifferent husband to return to his wife. However, a wife in love with another man, perhaps with the husband of another woman, may resort to a common love medicine.

#### Potency medicines

A Nkoya wife has a legal right to the sexual services of her husband. Nkoya women have a disagreeable habit of complaining loudly when they feel that their husbands do not fulfil their duties, the men say. If a Nkoya man is stricken by impotency, or if his wife finds that he lacks endurance and vigour, she will not only outspokenly reproach him, but also tell the other village women. Thus he will be subject to a lot of insinuations. It is thought to be his own business to cure himself. There are several medicines for him to try. If he fails, permanent impotency is according to Nkoya tradition sufficient cause for divorce.

However, if his wife does not want a divorce, she will probably make an attempt to treat him secretly.

A simple means is to prepare hot dishes by peppering with strong red and yellow spices (*Capsicum*, *Curcuma*) to make his blood hot and his body quick. It is important not to dose him too liberally, because then he might get angry, explained my female informants.

According to Nkoya physiology, ingredients with burning (hot) taste are capable of heating the blood and making it run faster. If too much heat is supplied, the pressure will rise and be released in anger.

If this medicine doesn't help, the wife may take the powder obtained from the dried, pulverized fruit of the red pepper (*Capsicum*) and mix it with castor oil. The ointment is discreetly applied to her husband's penis.

If still no improvement is seen, the wife should catch a leech of any colour and size (*Hirudinea*) (*munyambu*) and burn it, dry and pulverize a root of the tree *Afrormosia angolensis* (*mubanga*), mix the ashes and the powder, and put the whole into her husband's beer cup.

"*Munyambu* swells easily with blood and prolongs itself, when it has taken a firm hold", my informants said, and:

"*Mubanga* has a very hard wood, and so the husband's penis will become as hard as *mubanga* wood".

The leech is a dominant sexual symbol for the Nkoya. It represents erectile power and suction capacity. Its properties are used in ritual and in medicine. *Afrormosia angolensis* is a medium-sized, common tree with hard borer- and termite-resistant wood (ironwood).

If a Nkoya husband lacks vigour, his wife may collect a woodpecker's chips at the foot of a tree, burn them and mix the ashes with any kind of oil. The medicine is applied discreetly to the husband's penis.

"*Shingongomwena* (woodpecker) chips are used, because this bird hammers violently, and so will the husband do", I was told.

Ingredients for similar medicines are collected from the mortar and pestle, "because they work together but are yet different, just like man and woman", from the firedrill, or from the smith's bellows.

A man surmising that he is being treated with a potency medicine by his wife may react by feeling strengthened. To the extent that she has a share in causing his impotency, it is possible that she in treating him will influence herself for the better.

## II MEDICINES FOR INFLUENCING NEGATIVELY THE RELATIONS BETWEEN HUSBAND AND OTHER WOMEN

### Untidiness medicines

A woman shall keep the house clean and in good repair. She shall plaster cracks and holes in the walls and in the floor, sweep regularly, and remove waste. Otherwise dirt and dust will accumulate, and vermin will thrive.

A man expects to spend a pleasant night in a woman's house. This includes an undisturbed and sound sleep. He demands to be thoroughly rested when he is awakened at dawn by the thumping noise from the village women pounding meal for breakfast.

If a wife has a rival, she knows how to destroy the peace of the rival's home. She goes to the fowl-house, pulls some straws out of the thatch, scrapes together a lump of fowl droppings, and tears off a piece of bark with adhering fowl-ticks (*Ornithodoros*) (*rihafu*) from a supporting pole. The ingredients are mixed and pestled. Water is added until the consistency is pasty. A live antlion (*nfukwanfukwa*) is inserted, and some feathers from a nightjar (*shambamba*) are fastened to the clot, which is finally studded with the black and red seeds of the shrub *Abrus precatorius* (*shimonyimonyi*). The medicine is hidden in the other woman's roof or hearth.

My female informants explained to me:

"The things from the fowl-house are used because they are dirty and stinking. When a man visits the house, it will appear to him to be untidy and inhospitable, and he will feel as if he were stung by fowl-ticks".

"*Nfukwanfukwa* makes dust fly in the air, and so there will be small clouds of dust whirling around in the rival's house".

"The *shambamba* feathers will cause the man to feel restless".

"The *shimonyimonyi* seeds will make him experience something evil in the house, and hence he will avoid it".

The nightjar is supposed to fear the ground during the night. The Nkoya interpret its swaying flight as a manifestation of restless exhaustion. The black and red poisonous seeds of the climbing shrub *A. precatorius* indicate

the medicine's evil nature, perhaps a sign of warning to the victim not to proceed with her doings which might lead to her death. The seeds are by the Nkoya regarded as a symbol of sorcery, poison, and death.

According to a variant of the recipe, the antlion is omitted and chicken's feathers are substituted for the nightjar feathers. The woman who gave me this formula expounded the matter and said that the effects of the medicine are certainly concrete. "Chickens always scratch the ground and raise a lot of dust. The man will find it difficult to breathe and feel the pungent odour. When the rival tries to excuse herself, saying that her house has up to then been nice and clean and that there must be some sorcery working, he won't believe her. He will return to his wife repenting his sins".

Formerly, old Nkoya women told me, the fowl-house was not invented and the chickens were kept with people. This resulted in bad air and much vermin. Even today the Nkoya woman sometimes keeps her brood-hen and the chicks in her own house to protect them from enemies.

These medicines will perhaps radiate some bad smell. As this is not their main purpose, I have not classified them with the stink-medicines. They may do some good in strengthening the wife's assurance and in warning the rival.

Another means is to point one's index finger stiffly at an approaching whirl wind (*kakundukundu*) and with a firm gaze direct it by the finger towards the rival's home. If the wife desiring her husband back is lucky, the rival's roof will be lifted off, and everything in the house will be mixed up with sand.

Yet another way of action is to visit a house with much vermin and on some pretext look about the room searching for the biggest individual (i.e. the ruler) of each species. Thus she collects the chief of the clothes lice (*Pediculus humanis*)(*ina*), the president of the bedbugs (*Cimex lectularius*)(*ruhanya*), the headman of the cockroaches (*mpenzi*), and also the chief of the fowl-ticks (*Ornithodoros*)(*rihafu*). These are wrapped up in a leaf and carried secretly to the rival's house where they are released. The idea is that their subjects and kin will look for them, find them, and then all of them migrate to their new residence. The members of a village or family always follow their head, it was explained to me.

When the man stays with the rival, he will have a very bad, sleepless night. He will be bitten, stung, and pricked as by hot needles. His itching body will torment him for a long time. Quite naturally he will blame the woman and return to the peaceful bed of his wife.

My informants declared that the flea (*Pulex irritans*)(*mbarembare*) is not used, because it is already present in every house. The floor maggot (*Cordylobia anthropophaga*)(*rivuno*) is also inapplicable, because people do not sleep on the floor any more.

The actual course of events is certainly not the expected, even when this medicine has been put into a house. Yet the effect may be about the same, as the collected specimens probably are impregnated females distended with eggs. These are bigger than their fellow-creatures and will readily found flowering colonies on their own.

A more reliable method is practised by those wives who hunt up hiding-places of vermin (bedbugs, lice, fowl-ticks), collect e.g. a piece of cloth or a strip of bark with adhering vermin, and throw it all into the rival's home.

Biological warfare is thus nothing unique for the western world.

### Stink-medicines

Unpleasant odours have a strong repelling power. The Nkoya know of many animals and plants that emit a strong stench. They may be used for contaminating a person or for driving somebody away. A wife often resorts to stink-medicines if she feels that her marriage is threatened by a rival. These medicines may be divided according to whether they are directed against the rival's house, against her food, or against the rival herself.

One recipe proposes that the wife should collect a dung-beetle (of any

species)(*ritutatusi*), a piece of a root from the tree *Dialium englerianum* (*mwaru*), droppings of a genet (*mbomba*), and one stem with leaves and flowers of the *rwenyi* herb (unidentified). These ingredients should be crushed and mixed into a paste. The medicine is hidden in the rival's hearth.

When the other woman lights her kitchen fire and the medicine comes into contact with the heat, an unbearable stench will spread, say my informants. This smell sticks to everything in the house, and the source of it is impossible to find. Now it seems to come from this place, now from that. The man will flee to his wife's hearth, where he is better received.

I was given the following explanations of the medicine's composition:

"*Ritutatusi* is used because it stinks and has the habit of rolling about balls of dung. The source of the stench will appear to roll hither and thither, just as the dung-beetle's ball".

"*Mwaru* has a stinking liquid in its root".

"*Mbomba's* droppings smell worse than any other animal's".

"*Rwenyi* is used because its smell drives everything away".

The main function of the dung-beetle seems to be to protect the medicine against detection. *D. englerianum* is frequently used in Nkoya medicines to drive off sickness. The *rwenyi* herb is an ingredient in many house remedies for getting rid of anything from colds to mosquitoes.

Another related medicine consists of part of a root from the tree *Baphia obovata* (*mubunde*), one stink-bug (any species of Pentatomidae, Hemiptera) (*ncungurututu*), and the excrements of a village dog and of a hyena. The whole of it is mixed into a paste, and some chicken feathers are inserted. The medicine is hidden in the hearth or in the thatch above it, and will work in about the same way as the preceding one.

It was explained to me that *mubunde* roots as well as *ncungurututu*, dog's and hyena's excrements, and burnt chickens' feathers smell very unpleasantly.

Other more simple recipes are: Hide a rotten fish in the thatch. Insert chicken's feathers under the bark of a log at the fireplace. Burn some hairs from the rival's head in her fire. Hide a genet's droppings in the roof. Bury a goat's droppings in the ashes.

Stiff porridge (*nshima*) is the staple dish of the Nkoya, who appreciate a clean meal without hulls, boiled with water to just the right consistency without getting a burnt taste. The Nkoya men are real connoisseurs and will often talk about their mother's porridge, complain the wives.

If a handful of dust and a crushed stinkbug (*ncungurututu*) are slipped into the rival's porridge-pot, the man's eyes will squint. He will spit out the food, refuse to eat it, and return to his wife. The rival will be very ashamed about this event.

Beer and relish, e.g. honey, may be polluted in similar ways.

This medicine will probably be effective, as the stink-bugs have a very bad smell which will easily destroy the whole meal.

The rival herself also runs the risk of being attacked. The unfaithful husband expects the rival's skin to smell like honey, but the jealous wife contemplates other plots:

Catch a stink-ant (*Megaponera foetens* or *Plectroctena mandibularis*, Ponerinae)(*munyewu*), crush it, and mix it with tobacco. Roll a cigarette, and present it to your rival as a gift. She will gladly receive and enjoy it. When the man meets her, he will start back in repugnance, because she is stinking awfully like the stink-ant. She will not understand him, because just like the stink-ant she doesn't notice her own stench, but believes herself to be sweet-scented.

According to another recipe, the wife should spy for the place where the rival is in the habit of relieving herself. She should search the spot until she finds a pubic hair, and then burn this together with a dried stink-ant. The powder is slipped into the food or drink of the rival. When the man approaches her he will feel the stench. Fearing that she has caught a venereal disease, he will find some excuse and leave her.

Some of these medicines will have at least some effect as stinkpots. Thus excrements, burnt hairs, chicken feathers or rotten fish will certainly spread a bad smell in a house. A stink-bug mixed into a dish will destroy the whole meal. Even if the stench of a medicine is endurable, it will perhaps be interpreted as a danger-signal, and as a token of bad luck, sickness, and death. The Nkoya associate nasty smells and e.g. the hyena and the stink-ant with the evil. Goats, too, are suspected, as they are kept primarily by the immigrants who have a great reputation as sorcerers.

### Fumblingness medicines

The Nkoya women know of medicines that counteract a tempting courtship. A wife who fears that her husband is seducing another woman with his attractive conduct will perhaps use the following recipe:

Kill a mantis (any species of Mantodea) (*kaburamboko*). Dry and pulverize it, and put it into the food or drink of your husband. Then he cannot court any woman (except his wife) in the proper way. His refinement is gone, and he becomes a flushing, stammering fool, who drops his gifts (e.g. honey, cloth, tobacco, or money), stumbles in the doorway, burns the rival or himself with the cigarette.

The same medicine may be given to the rival. She will behave queerly, babble nervously, and spill hot food on her visitor when she serves him, etc. Her tongue will also fumble, saying e.g. that her absent husband sent a message that he is about to return, or mentioning his violence. In short it will be clear to every sound man that he had better avoid this woman instantly.

The mantis, say the Nkoya, seems to possess arms with hands, but when you look closer, you see that it has no real hands (*maboko*). It is a symbol of clumsiness. Obviously the idea is that this quality will be transferred to a person who swallows it.

If this medicine is given secretly and the victim doesn't suspect anything, the intended effect will probably fail to appear. If the victim has the feeling that something is brewing, he or she is likely enough to get a bit nervous and awkward.

Another method to make a rival fumble is to remove the clay nest of a mason wasp (Eumeninae, Hymenoptera) (*mbimbefu*) cautiously, and put it into the rival's mortar. When she starts to pound at dawn, she is sleepy and will not observe that she crushes the nest together with the grain. The result is that she will break and drop all her clay pots, gourds, rum bottles, drinking vessels. When the man finds that there is nothing to drink and no food to eat, he will return to his wife.

The Nkoya believe that if they break the mason wasp's nest they will break things afterwards, and they do.

### Impotency medicines

A wife suspecting an undesired rival may also take her resort to a medicine that makes her husband impotent in his relation to another woman. She may e.g. use the following recipe:

Pull up a *karióngwe* plant, any kind of small seismonastic herb, in your cultivation. Make a medium-sized lizard (*muholobozi*) drop its tail by beating it with a branch, and collect the still wriggling tail. Dry, pound, and mix the ingredients, and put the powder into your husband's cup of beer, or rub it directly into the penis, where it will be most effective. When your husband goes to the other woman he will be impotent.

It was explained to me that:

"*Karióngwe* seemingly stands erect and strong, but as soon as it is touched it dies. After a while it revives and looks healthy again. The consequence of a second touch will be the same, but on repeated contact it will seem to drop dead until the next day. The husband's penis will behave in the same way".

"The *muholobozi* is used because its lost tail is soft and cold.

The description of a seismonastic plant is quite accurate. The lizard itself is a symbol of fertility. If a lizard falls on a woman, she will become



pregnant.

Two young women wanted to substitute a tiger-beetle larva (*Cicindelidae*, *Coleoptera*)(*shikalobaloba*) for the lizard's tail, explaining that it would kill the potency just as it kills its victims. An old woman raised the objection that such a medicine would give permanent impotence. If a lizard is used, the man will become potent again, because, the old woman said, the lizard always develops a new tail after some time. The young women thought that a doctor could always restore the man.

According to another formula cold ashes from the hearth should be added.

"The man's virility will be as dead as an extinguished fire, when he visits the rival", the Nkoya women say.

When a husband neglects his wife by committing adultery all over the neighbourhood, she will perhaps revert to the following medicine:

Break a branchlet from the tree *Diplorhynchus condylocarpon* (*muburi*), and collect a chicken's feather, a *kariongwe* herb, and a beetle of any species that drops dead when touched (mostly *Curculionidae*, *Coleoptera*)(*mubikankwata*). Dry, burn, and mix the components, and put the whole into a medicine container (*mbashi*). She hides it under her arm or in the house. Whenever you suspect that your husband is on the way to another woman, touch the medicine. He will become impotent instantly. As a result every woman courted by him will laugh at him. Ashamed and shy he will return to the only one who doesn't make fun of him.

"*Muburi* is used because of its slooping, weak branches", my female informants explained, and: "The chicken's feather is soft, *kariongwe* dies when touched, *mubikankwata* dies on purpose".

If a man suspects that he is treated with an impotency medicine by his wife, he will likely become uncertain and nervous. The consequence of this may very well be the desired.

### III MEDICINES FOR KEEPING ADULTERY SECRET

There exist several protective means against discovery of adultery, but most of these are known and used only by men. Some are identical with thief's medicines, e.g. medicines that remove footprints.

My female informants told me that they have not heard of more than one medicine to this end.

An unfaithful wife may burn a spider's web in the fire in such a way that the smoke carries the fume towards her husband. He will get blinded and not notice anything.

Spider's webs are common ingredients in Nkoya medicines against blindness.

When a case of adultery is discovered, the villagers say that they cannot understand why they didn't observe that something was going wrong, as the relation was so obvious. Certainly some medicine was in use.

### Abortifacients

If adultery results in pregnancy and it seems probable that her husband will realize that it is not his child, the wife will likely use an abortifacient, because she fears his fury.

To abort the fetus the woman should dig up a root of the tree *Securidaca longipedunculata* (*mutata*), crush it, soak it for a while in water, and use the water for an intravaginal rinsing. Other stinking agents are often combined with the roots in order to drive away the child (cf. Reynolds 1963, 67).

Old women stress that abortifacients were not used in the olden days when every child was welcome. The husbands were not absent long enough for the problem with undesired pregnancies to arise. Still today only prostitutes and the wives of absent men take to abortion. The abortifacients originate with the immigrants, I was told.

### IV DIVORCE MEDICINES

Divorces are quite common with the Nkoya. A Nkoya man has a right to divorce his wife without any special reasons. A Nkoya woman who wants to leave her husband needs a legal ground and she must apply to the court.

It is materially advantageous for a wife to be repudiated instead of suing for a divorce herself. Thus, if she has made up her mind to annul the marriage, she will perhaps try to treat her husband with a reversal medicine that will make him divorce her.

If this attempt fails, she may resort to some medicine that will affect him in such a way that the court will permit her to leave him.

One possibility is to crush a mantis (*kaburamboko*, which literally means the one without work) and mix it into her husband's food. This medicine will make the man lazy and incapable of work, and on that ground the divorce will probably be approved.

Another possibility is to use an impotency medicine. She spies out where her husband is in the habit of urinating, and there she hides a medicine, consisting of the burned ashes of the tiger-beetle larva (*Cicindelidae*, *Coleoptera*) (*shikalobaloba*) and a seismomastic herb (*kariongwe*) in the sand.

If her husband's urine hits the spot where the medicine is buried, he will be caught and become permanently impotent (see Impotency medicines). Impotency is a ground for divorce.

Yet another way is to catch a butterfly (*ribayubayu*) of any species and colour, scrape off the dust from its wings, and sprinkle this powder over the face of the sleeping husband. The inhaled particles will make him mad like a butterfly.

Alternatively a dried and crushed butterfly may be put into his food or drink.

The Nkoya hold the butterfly with its jerky, aimless flight and filthy habits (it feeds e.g. on excrements) to be stark mad. It is a symbol of madness.

I asked a woman who confessed that she had tried to make her husband mad in this way if she didn't commit an act of sorcery. She answered that one must be allowed to make one's husband at least a little mad.

If the wife despairs, she may go to the doctor (*nganga*), who will give her a truly effective medicine. According to what a doctor told me this medicine contains a butterfly, the heart of a mad dog, and a root from any tree growing on a burial-place (see further Silow 1976, 176-187).

A Nkoya wife with a mad husband will be permitted to divorce him.

The perfectly radical means to get rid of an undesired husband is to poison him (i.e. kill him by sorcery). My female informants knew of several deadly poisons of vegetable origin. The best thing is to mix such a concoction with a crushed scolopender (*shihobwe*) in a lethal dose, I was told.

#### V HUSBANDS' PREVENTIVES OF WIFES' MANIPULATIONS

When ill-feeling arises between husband and wife, and he suspects her of treating him secretly he will probably, at least if he is fond of her, use a medicine to reverse her mind or give her a love medicine. Maybe he will change his behavior and give her gifts to please her.

If a man fears that his wife wants to give him a medicine, it is advisable for him to eat from the common dish of the village men, and share drink and smoke with others. When he eats alone with his wife, and she doesn't touch the food, he should ask her to join him. A refusal on her part is a strong indication that she is guilty, and so he will perhaps beat her until he obtains a confession. A cunning wife will not reveal the real identity of the medicine, but says that it was a love medicine. The alarmed husband will take an antidote or go to the doctor.

To warn his wife the husband may put a snake's head, a millipede (*munkonyo*), and a bushy tree parasite (*shishi*) into a pot of water, boil the mixture, drag the woman up to the pot, lift off the lid, and waft some vapour on her. She will get scared and cry from fright for a long while. If she has watched his doings, she knows the consequences of continued attempts to manipulate the man. The millipede would bring sterility or leprosy, the snake's head pain and death, and the parasite would penetrate her and eat her, if she was treated with the drug.

A man whose wife slanders about his potency, may collect some bees (*Apis mellifera*) (*rupuka*), nip off their gads, burn them, make cuts in his penis, and

rub the ashes into the sores. The idea is that now the penis is loaded with pain which will be transferred to the wife when they sleep together.

A husband suspecting that he is made impotent by sorcery, should dig up the *mukwanganzobu* root (unidentified), drink a decoction of it, or rub it into cuts in the penis root. The Nkoya men say that the root is used because it is so firmly fixed in the earth that not even an elephant can pull it up.

The Nkoya men's emotions seethe when the wives' proneness for adultery is discussed. There is always reason to keep watch over a woman, I was told. A woman hoeing alone in the field will likely accost a passing stranger, pretending that she needs his help e.g. with a loose handle, and seduce him. Knowing this, suspicious husbands will sometimes lie in ambush with their axes. However, some men show a more materialistic attitude towards their wives' love-affairs. They regard them as infringements on private property, and welcome the indemnity paid by the adulterer and by the wife's relatives.

As a man cannot always be vigilant, he may have reason to buy a medicine against adultery from the doctor, who knows of several recipes. Such a medicine administered openly or secretly to the wife turns her into a dangerous trap. A seducer will catch some disease like elephantiasis in the scrotum (cf Turner, 1967, 302).

An old widow told me that when she was young and married, she once felt a desire for a certain man during harvest time. He approached her, but when she wanted to touch him, she was somehow compelled to throw sand in his eyes and run away instead. She was convinced that her late husband had used a medicine to withhold her.

#### CONCLUSION

The Nkoya law permits a man to take a second wife (thereby depriving his first wife of half the married life), to have extramarital love-affairs, to repudiate a wife whenever he likes, and to beat her if she has committed an offence. A woman, on the other hand, should be faithful to her only husband, must apply before the court if she wants to divorce, and has hardly any possibilities to thrash her husband, as she is probably physically weaker. However, the Nkoya women do not rest content with being oppressed. Evidently they do not feel morally obliged to submit to the norms of the men, when these are contrary to their own interests, but take their resort to the use of secret psychological and medical means to maintain their ground. Thus they know of quite a number of medicines designed for different troublesome matrimonial situations.

The Nkoya men tend to classify the women's use of medicines in conflicts with their husbands as sorcery. This view is strengthened by the fact that the men are not given insight into the women's recipes, and by the fact that they understand that the women try to restrict the men's freedom. Further, the men feel somewhat envious of the women's initiation rites, which give the women a strong sense of group affinity and make them cooperate against the interests of the men, who lack initiation.

The women tend to regard their medicines as therapeutic remedies for curing husbands who suffer from different mental or physical disorders threatening the desired happy, monogamous marriage, and also as a compensation for their legal and physical inferiority.

Accordingly the women's medicines discussed in this essay can neither be labelled exclusively "white medicine" nor "black sorcery", but must be brought to a crepuscular sector between these two poles.

My data suggest that all grown-up Nkoya women are aware of the existence of this type of medicines, and can give the recipes of at least some of them. I have not been able to establish the frequency of treatments, but there are indications that the women regard their use as normal. Not unexpectedly the medicines seem to be most frequently in use in polygamous marriages.

Even if the Nkoya women's explanations of the modes of operation of the medicines do not correspond with western medical concepts, it is obvious that in several instances of treatment the effect will be the desired. Only in some cases a medicine will have a direct physical effect. More frequently, it may be supposed, one of these medicines will exert an influence upon the psyche either of the wife using the medicine, or of a victim, who begins to suspect

something. Thus most of the medicines can function as a means to conceptualize problems and objects and to release hidden tensions of a wife in trouble, or as a means to make her feel more self-reliant. A victim seized with suspicions will perhaps try to comply with the wishes of the perpetrator, or be influenced more unconsciously.

Moreover, the medicines certainly work collectively as a means of attaining increased equality between the sexes. A man who is conscious of his wife's access to disagreeable medicines will often be somewhat more inclined to consider her opinions and feelings. A woman who knows that she has a possibility to take her share in decisions that her husband otherwise reserves for himself will feel more self-confident.

One cause of the fact that the Nkoya women do not seem to be as oppressed as their inferior position in the eyes of the law would indicate is that they in their secret medicines have a powerful means for enforcing their will. A means dreaded by the men, trusted by themselves.

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## FISHING AND HUNTING AMONG THE MAKUNA

Economy, ideology and ecological adaptation in the northwest Amazon

by Kaj Arhem

### Introduction

This paper deals broadly with the two related problems of societal integration and ecological adaptation. My general aim is to demonstrate the functional and systematic interconnections between certain features of the Makuna economy, culture and natural environment. More specifically the paper examines fishing and hunting among the Makuna in the context of a particular ecological, economic and cultural setting. I attempt to show that the Makuna fishing and hunting activities, along with associated magical and cosmological beliefs, form part of an integral system of food production, aimed as much at control and conservation of resources as at direct exploitation.

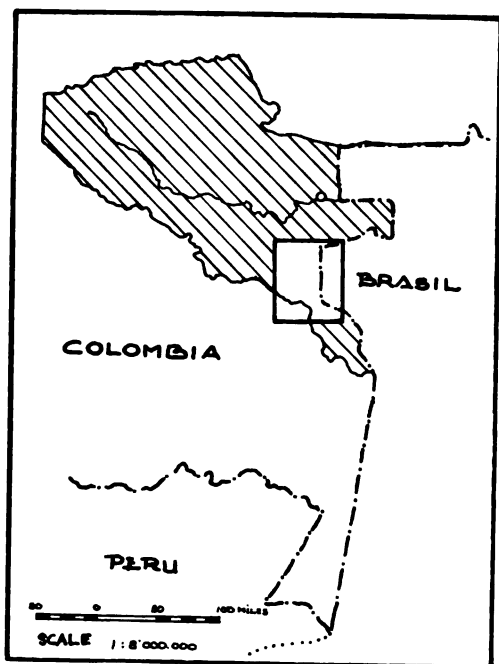
The Makuna are one of many Tucanoan-speaking Indian groups in the Pirá-Paraná area of the Columbian Vaupés. Numbering some 400 individuals the Makuna are scattered along the Komeña, Pirá-Paraná and Apaporis rivers. They live in large and widely scattered communal houses, malocas, today containing an average of 10-20 inhabitants. The 20 malocas on the Komeña river are located from 10 minutes to several hours' distance by canoe from each other. As a rule the settlement site is changed every 5-7 years. The moves are generally restricted to a particular section or tributary of the river. The maloca, containing 2-3 agnatically related households, is essentially selfsufficient in terms of Makuna subsistence economy. The elementary households within the maloca are based on nuclear families and are tied together by rules of cooperation and food-sharing. I will in the following refer to the inhabitants of the maloca as the domestic group or house-group. Local groups of malocas, occasionally headed by political leaders of the "big-man" type, are formed by close agnatic kin and affines. The basic political unit is, however, the independent domestic group. The headman of a house has very limited authority. In sum, the Makuna society conforms to the type of "segmentary tribes" common in the Amazon in general, and is fairly representative for the northwest Amazon in particular.

### Environment and resources

The tropical rain forest of the northwest Amazon makes a bleak prospect for human settlement. The soil is infertile, wild plant food scarce, and faunal resources meagre and fragile (Richards 1973, Meggers 1971, Lathrap 1970).<sup>2)</sup> Terrestrial game are few in number and widely scattered through the forest. The rivers are rather better provided in terms of subsistence potential than the forest. But in comparison with the large, white-water rivers of the Amazonian floodplain, the black-water rivers of the northwestern interfluvial area (like the Pirá-Paraná and Apaporis rivers) are poor in fish and aquatic game (Lathrap 1970).

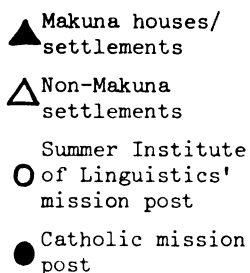
By all standards, the habitat of the Makuna is a poor and inhospitable one. Still, as shall be shown below, the Makuna easily make their living. Few in numbers and scattered along the rivers they sustain a modest livelihood. Though fish and game resources are not abundant, they are at least sufficient.

The climate of the northwest Amazon is characterized by high, almost constant day temperature and heavy rainfall, abundant throughout the year. There are four seasons, marked by variations in the water-level of the river rather than perceivable variations in rainfall: one long low-water season from mid-

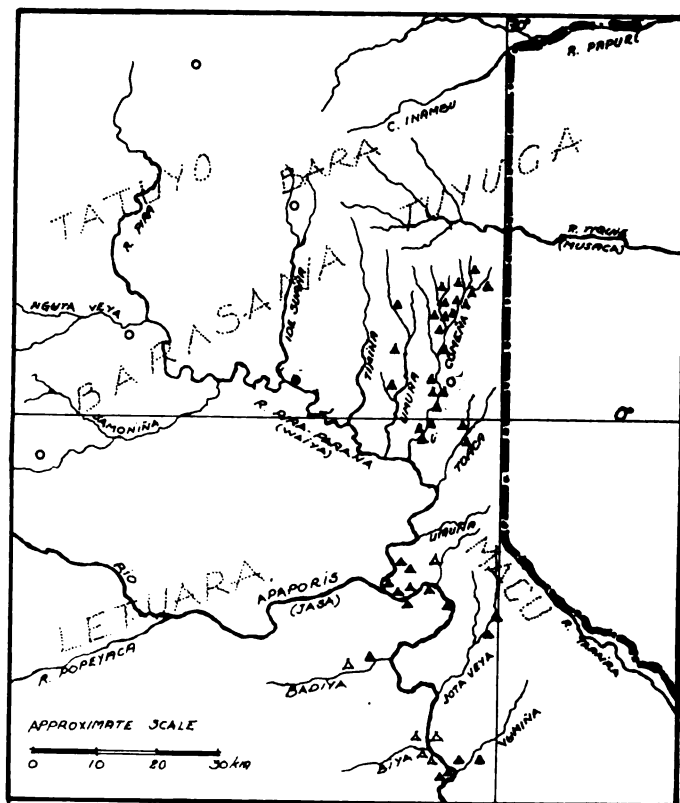


The department of Vaupés,  
eastern Colombia

Territory occupied  
by the Makuna and  
neighbouring Indian  
groups.



MACU: Neigh-  
bouring  
Indian  
groups



January to mid-April, followed by a long high-water season to mid-August, then a shorter low-water season to mid-October followed by a short high-water season to mid-January. For reasons of simplicity I will sometimes refer to these seasons as the dry and wet seasons.

The Komeña river-territory can ecologically be divided into a headwater and mainstream region. The fish resources are somewhat richer and more diversified in the middle and lower parts of the river than in the headwaters. Several species of economic importance in the mainstream region are not, or rarely, found in the headwater region. The common game animals seem all, however, to be evenly distributed between the two regions (see tables 1 and 2). The seasonal variations are more noticeable in the mainstream region than in the headwater region, where the water level varies considerably almost from one day to the other throughout the year.

Table 1 FAUNAL RESOURCES: GAME AND FISH OF ECONOMIC IMPORTANCE <sup>1)</sup>		
<u>Makuna name</u>	<u>Local spanish</u> <sup>2)</sup>	<u>Scientific name</u>
Mammals: <sup>3)</sup>		
<i>Gake</i>	<u>Maisero</u>	Atele
<i>Wau</i>		Callicebus
<i>Jamo</i>	<u>Armadillo, (Tatu)</u>	Dasyus novemcinctus
<i>Seme</i>	<u>Paca, (Borugo)</u>	Cuniculus paca
<i>Bu</i>	<u>Guara, (Picure)</u>	Dasyprocta
<i>Boso</i>	<u>Tin tin, (Curi)</u>	Cavia
<i>Wekw</i>	<u>Danta</u>	Tapirus terrestris
<i>Yese botiro</i>	<u>Cerillo</u>	Tayassu tajacu
<i>Haara yese</i>	<u>Cafuche</u>	Tayassu pecari
<i>Ñama</i>	<u>Venado</u>	Mazama
Birds:		
<i>Ngahanga</i>	<u>Gallineta</u>	Crypturellus?
<i>Ruhi, Ruhi botigu</i>	<u>Pajuil, Pajuil blanco</u>	Crax (spp)
<i>Kata, Kata maha</i>	<u>Pavo, Pavo colorado</u>	Penelope (spp)
<i>Ikagu</i>	<u>Coconuco</u>	Pipile?
<i>Waderakwa</i>		(Neomorfes?)
<i>Weko, Roe</i>	<u>Lora</u>	Amazona
<i>Rase</i>	<u>Tucan</u>	Ramphastus
Reptiles:		
<i>Guso</i>	<u>Caiman, (Jacare)</u>	Paleosuchus palpebrosus
Fishes: <sup>4)</sup>		
<i>Rutabuka, Rutamona</i>	<u>Sabaleta</u>	Brycon (spp)
<i>Uhuga, Somo uhuga</i>	<u>Palometa</u>	Myleus (spp)
<i>Suaro</i>		(Characidae?)
<i>Uñu</i>	<u>(Peix dulce?)</u>	(Characidae?)
<i>Roe</i>	<u>Dormilon, (Tarira)</u>	Erythrinus
<i>Bodega, Bodeduria</i>	<u>Baracu</u>	Leporinus (spp)
<i>Hawai</i>	<u>Sabalo</u>	(Curimatidae)
<i>Kuliri</i>	<u>Pintadillo</u>	Pseudoplatystoma
<i>Wahebuka</i>	<u>Barbudo</u>	Rhamdia
<i>Hasei</i>	<u>Lechero</u>	(Pimelodidae)
<i>Waisero</i>	<u>Hurahura</u>	(Pimelodidae)
<i>Pawa</i>		(Pimelodidae)
<i>Wanea, Wanebotia</i>	<u>Mojara</u>	(Cichlidae spp)
<i>Maha</i>	<u>Yaconda</u>	Crenicichla

1) From this table are excluded the very small fishes, sardinas, which the Makuna call *wai lia*, i.e. "fish children". The Makuna regularly catch between 5 and 10 different species of *wai lia*, the most common of which are: *seara*, *yuhara*, *komeara*, *bahatiro*, *kahura* (not identified). Amphibians and insects, along with other arthropodes, which rather pertain to the domain of gathering than hunting, are also excluded from the list. Insects provide a considerable

portion of the protein supply in the Makuna diet. Of the amphibians, big toads are caught and eaten occasionally, while a species of frog (*uma*) is caught in great numbers during a short period in the beginning of the dry season (Jan-Feb). On this occasion several hundreds of these frogs are smoked and eaten by a single domestic group. The game and fish listed in table 1, with few and insignificant exceptions, provide the Komeña Makuna with all the animal-food recorded by me during my 16 months stay with them. (It is perhaps noteworthy that tortoises and turtles did not occur at all in the native diet during this period).

2) Some names are also given in Lingua Geral.

3) The general systematic order and the taxonomy of mammals, birds and reptiles is taken from R.M. Gilmore, "Fauna and ethnozoology of South America" (Handbook of South American Indians, vol 6, 1950).

4) The systematic order and taxonomy of fishes is taken from Fittgokau et.al., "Biogeography and ecology of South America" (2 vols, 1968. The Hague).

Table 2 RELATIVE ECONOMIC IMPORTANCE OF DIFFERENT GAME ANIMALS AND FISHES IN THE TWO REGIONS OF THE KOMENÁ RIVER			
Period of observation:			
Mainstream region: 36 days from May to October (periods III-V in diagram 1). During 3 productive fishing-days the species were not identified, and therefore excluded.			
Headwater region: 29 days from May to October (periods III'-V' in diagram 1).			
GAME		MAINSTREAM	HEADWATER
Species	approximate body weight (kg)	total catch (no. of individuals)	
<i>Seme</i>	(9)	3	6
<i>Gake</i>	(6)	1	3
<i>Jamo</i>	(6)	1	-
<i>Gaso</i>	(5)	2	1
<i>Bu</i>	(3)	1	-
<i>Kata</i>	(2)	-	6
<i>Wau</i>	(1)	2	2
<i>Rase</i>	(0.6)	4	6
<i>Ngahanga</i>	(0.6)	1	3
<i>Weko</i>	(0.4)	1	-
<i>Waderakwa</i>	(0.3)	1	-
FISH (all <u>sardinas</u> excluded )			
<i>Kuliri</i>	(30)	3	1
<i>Hasei</i>	(10)	1	-
<i>Waisero</i>	(7)	1	-
<i>Wahebuka</i>	(5)	3	-
<i>Hwai</i>	(3)	2	-
<i>Pawa</i>	(2.5)	-	3
<i>Roe</i>	(1.5)	5	17
<i>Ratubuka</i>	(1)	18	2
<i>Uhuga</i>	(0.8)	22	-
<i>Suaro</i>	(0.5)	-	7
<i>Bodega</i>	(0.5)	3	-
<i>Uñu</i>	(0.4)	-	1
<i>Maha</i>	(0.3)	-	2
<i>Wanea</i>	(0.2)	6	10

#### Hunting and fishing in the Makuna subsistence economy

Subsistence among the Makuna is based on fishing, hunting and slash- and-burn cultivation. Bitter manioc is the staple. Collecting of wild fruits, nuts, seeds and insects is a supplementary activity, but periodically plays an important role in subsistence.



Hunting and fishing are basically male activities. Every adult Makuna man is a hunter and fisherman. Gardening is essentially the women's duty. Men cut and clear the forest for the garden, and participate in the burning, but women plant and harvest the crop. Manioc is harvested almost daily throughout the year. Collecting is done both by men and women, mostly in an unsystematic and casual way.

As productive activities fishing and hunting may be grouped together. Men usually go fishing and hunting on the same trip, carrying both fishing and hunting gear with them. Thus a large portion of hunting is done from the canoe, and some fishing is usually done in small streams along the hunting tracks in the forest. However, in terms of native conceptualization and attitudes hunting and fishing are separate activities. Hunting, particularly of the large game, is dangerous, while fishing is peaceful and harmless. Hunting involves an element of struggle, and is therefore emotionally and symbolically charged. Hunting is accordingly an exclusively adult male activity, while fishing also may involve women and children. Women occasionally go fishing, either alone or in the company of a man. Young boys, 10-12 years of age, spend much of their time fishing, and are largely self-sufficient with respect to fish.

Hunting and fishing are carried out as parallel and complementary activities throughout the year, but productivity, methods, and the relative importance of hunting and fishing respectively, in terms of food supply, vary seasonally. Though most of the economically important fishes and game-animals are found all year round, particular species are especially abundant or more accessible during certain seasons and periods<sup>3</sup>. In general the Makuna state that both hunting and fishing are easier when the river is at a low water level. The comparatively abundant supply of fish in the mainstream region makes fishing the dominant male activity in this region. Conversely, the relative scarcity of fish makes hunting the dominant productive activity in the headwater region (see table 3).

Table 3 RELATIVE IMPORTANCE OF FISHING AND HUNTING IN THE MAINSTREAM AND THE HEADWATER REGION

A: as indicated by the proportion between the number of productive fishing- and huntingdays in two domestic groups.

	Mainstream house	Headwater house
Period of time (in days) <sup>1)</sup>	62 (100%)	29 (100%)
No. of productive huntingdays:	23 (37)	15 (52)
No. of productive fishingdays:	34 (55)	12 (41)
No. of productive gatheringdays <sup>2)</sup>	10 (16)	5 (17)
No. of days when no animalfood is produced:	16 (26)	7 (24)

B: as indicated by the contribution of fish and game to the total animal-food supply (in gross weight percentage) in two domestic groups (compare diagram 1).

	Mainstream house	Headwater house
Game	23%	56%
Fish	77%	44%

1) The period of 62 days in the mainstream region refers to periods I-V in table 4; and the period of 29 days in the headwater region refers to periods III'-V' in diagram 1.

2) Gathering refers to the collecting of wild fruits, nuts, seeds, berries, and arthropodes.

#### Property and ownership

There are no individual property or territorial right to fishing and hunting grounds. A man belonging to the territorial group can fish and hunt wherever he chooses in the territory. In sections of the Komeña river, where the population

is relatively dense, the fishing grounds utilised by several domestic groups may overlap. Still there is no competition for particular fishing and hunting grounds, and I observed no conflict concerning the basic resources. As a rule, the houses are sufficiently dispersed to allow each house-group to exploit a separate section of the river or the forest. Places particularly abundant in game and fish, like saltlicks and uninhabited stretches of forest and streams (f.ex. the headwater area of the Toaca river) are frequently visited by fishing and hunting teams from various domestic groups. The different teams take care not to make these trips simultaneously, but no one group may claim precedence over any of these places.

Captured game and fish belong to the immediate producers. The women preparing the food also have rights to it. The producer is the owner of the food, but he is subject to the rules of sharing food within the domestic group. As owner of the food he controls the distribution; he decides with whom to share it and how much. Fishing and hunting equipment is individually owned, but is available to any member of the domestic group when not used by the owner.

#### Organization of work

All fishing and hunting techniques can be handled by individuals. Men fish and hunt alone or in couples. Only the sporadic poisoning of fish may involve men and women of the whole domestic group. Usually the hunting and fishing team consists of a couple of men in a canoe. The canoe is most conveniently handled by two persons. The team is recruited from within the household or domestic group. Frequently it is composed of two brothers, or a father and his adolescent son. Fishing-teams are sometimes also composed of a brother and his sister, or a mother and her adolescent son. On extended hunting trips over several days, men are accompanied by women who help carry equipment and prepare food.

Likewise, all fishing and hunting equipment can be manufactured by individuals (except, of course, shotguns, steel hooks, nylon lines, etc., traded from the whites). The knowledge of selecting and manufacturing of materials is shared by all adult men. Though fishing and hunting equipment and techniques are simple, they require an advanced skill and deep knowledge of the physical environment and the life-habits of game animals and fishes.

#### Fishing methods and varieties of fish

Fish catching methods are more elaborate among the Makuna than hunting methods. I recorded more than 10 different methods of fishing, involving different equipment and special knowledge.

By far the most common and widespread method is fishing with line and hook. Nowadays steel hooks and nylon lines are purchased from white traders, but traditionally lines were manufactured from palm fibres (*Astrocarym*), and hooks from two crossed spines (possibly from the *Chonta* palm, *Guiljelma*). Fishing-rods, hand-lines and two types of suspended lines are used. One type consists of a thick, long line with a heavy lead and baited hook to take big catfishes in deep water. The other type is a short line of palm fibre, with a thin hook, baited with fruits in season, and suspended from branches hanging over the river's edge. These short lines (*yogm*) are set 10-15 at a time.

Other fish catching methods are less common. Fish poison (*wai lima*) made from the leaves of a *Phyllanthus* bush is used at least in two ways. One method, employed in the dry season, is to dam up shallow streams by weirs and saturate them with poison. The stupefied fish are scooped up with small hand nets. I observed this method only twice. Another method of poisoning, observed once, consists of throwing "false fruits" prepared by a mixture of mashed *Phyllanthus* leaves and grated *Chonta* fruits, into the river. The fish swallowing the "fruit" is stupefied and caught by men in canoes downstream (Comp. Brüzzi, 1962).

Spears and arrows (*wai hatu ragm*) with cane shafts and iron points are used in low water, most frequently in the headwater region. Multi-pronged spears

and machetes are frequently used for flare-light fishing at night.

Different types of conical basket traps (*aru* and *tu*; funnelshaped tubular traps with or without retarding device) are set in weirs in flooded sections of the headwater streams. Another type of trap is a fence set in heart-shaped position with a slit entrance (*wai sanima*). Transportable fish fences (*hiniro*) are found in most houses. Hand-operated scoop- and scimming nets (*yoligu*; a triangular net with two cross-shaped mobile rods to keep the net open) are used in both regions during low water periods.

The different methods and instruments are developed in response to seasonal and regional variations in ecological conditions and are used for catching different varieties of fish. Some methods are thus more important in one rather than the other region, and used more often during the dry than the wet season and vice versa. However, all methods are well known to all adult Makuna men, and most of the fishing gear is found in every maloca (see table 4).

Gear	Season	Water-level	Region:		Species most commonly caught
			I	II	
1. Fishing-rod	All year	H-L	+	+	<i>Rutubuka</i> , <i>Uhuga</i> , <i>Bodega</i> , <i>Wanea</i> , <i>Huwai</i>
2. Hand-line	May-July	H	(+)	+	<i>Suaro</i> , <i>Uhu</i> , <i>Pawa</i> , <i>Rutubuka</i>
3. Suspended long line	Oct-Nov	H	+	(+)	<i>Kuliri</i> , <i>Wahebuka</i> , <i>Hasei</i> , <i>Waisero</i>
4. Suspended short line: ( <i>yogu</i> )	May-July (fruit season)	H	+	+	<i>Rutubuka</i> , <i>Uhuga</i>
5. Scoop net: ( <i>yoligu</i> )	Feb-Apr	L	+	+	<i>Rutubuka</i> , <i>Bodega</i>
6. Basket traps: ( <i>tu</i> , <i>aru</i> )	June-July	H	-	+	<i>Roe</i> , <i>Bodega</i>
7. Fence trap: ( <i>wai sanima</i> )	Apr-May	(L-H)	-	(+)	<i>Bodega</i> , <i>Suaro</i> , <i>Wanea</i>
8. Poison	Jan-March	L	(+)	-	<i>Roe</i> , <i>Bodega</i>
9. Spear	D	L	(+)	+	<i>Maha</i>
10. Bow-arrow	D	L	(+)	+	<i>Rutubuka</i> , <i>Maha</i>
11. Machete	All year	H-L	+	+	<i>Roe</i> , <i>Pawa</i>

Key: I = mainstream region  
 II = headwater region  
 D = dry season  
 H = high water stand  
 L = low water stand  
 + = method observed frequently  
 (+) = method observed only occasionally or rarely  
 - = method not observed

Though the quantitative evidence is weak, it is my definite impression that the headwater people use a broader spectrum of fishing methods and equipment than the mainstream people, who rely more on the basic and most comfortable methods like line- and hook fishing. Thus, it seems that the headwater people utilize a larger portion of the available river resources than the mainstream people. It follows that the former regularly catch several smaller fishes,

that are available, but only seldom caught in the mainstream region (see table 2). As the fish resources are richer in the mainstream region, the people of this region neither have to use all their knowledge or technical possibilities, nor do they exploit their riverine environment fully, in order to make a comfortable living according to their standards.

In the mainstream region by far the most frequently caught species were the delicious *rutu buku* (Bryconinae) and *uhuga* (Mylinae), taken all the year round, but particularly abundant during their migrations. The large catfishes (Pimelodidae) also play an economically important role in this region. In the headwater area the most commonly caught species were *roe* (Erythrinus), *wanea* (Cichlidae) and *suaro* (Characidae?) (see table 2). It should be noted that in both regions a large quantity of small fish *wai lia* or *sardinas* are caught, although they do not constitute the principal body of fish food, as in other Amazonian groups. I estimate that the portion of *wai lia* makes up about 10-15% of the total catch (in weight) among the Makuna.

#### Hunting-methods and game

Although methods of hunting are less varied than the fishing methods, it is the major male productive activity in the headwater region. Like the fisherman, the Makuna hunter relies more on his physical skill and knowledge of his environment than on his weapons. Every Makuna hunter knows the behaviour patterns of all important game animals. He knows their eating habits and recognizes their sounds and cries, their tracks and excrements. He uses scent, sight and mimicry to track and spot the game, and his success depends on his ability to work in close enough for a good shot (comp. Carneiro 1970).

Hunting methods and weapons vary with the animal hunted. Today by far the most important weapon is the shotgun. It is carried on all hunting and fishing trips. With it most game animals are killed. All domestic groups on Komeña have at least one gun. Blowguns and poisoned darts are still quite frequently used by the Makuna, essentially for birds and monkeys. There are two types of blowguns: one is made of two complete tubes, one set within the other (*ñusara buhaga*); the other forms a single tube composed of two split halves, carefully grooved and tightly strapped together (*yuku buhaga*). Both types of blowguns are highly valued and only a few men know how to make them really well. The first type is thus mostly traded from the neighbouring Rasengana people. The best dart poison (*lima*) is obtained from the Makú of the Apaporis river, although some Makuna men know how to prepare it. I recorded the use of bow and arrow in hunting on only two occasions, once for killing a paca, and another time a deer. The bow and arrow are essentially replaced by the shotgun. The bow (*hatu rahé*) has a triangular or semicircular cross section and is between 130-175 cm long. The arrows (*yiroga*) have cane shafts and points of hardwood. Clubs (*jota hai*) and spears were said to be used formerly on tapir and peccary hunts, but are of no importance today. On two occasions I observed men carrying long spears on tapir hunts, but they were never used. Dogs have been introduced by whites but are few and seldom used in hunting. Caymans are killed with the machete from the canoe in flare light at night. Snares were said to be used occasionally for tinamous and agoutis. Large spring pole traps (*yuka vere*) are used for trapping king vultures, whose feathers and bones are used for ceremonial purposes.

The most frequently killed game are listed in table 1. The paca, toucan and guan provide the bulk of the meat supply, followed by tinamous, caymans, monkeys (spider and Callicebus) and parrots. Less common are the big game like peccary, deer, tapir, armadillos, agoutis and curassow birds. It should be stressed, in conclusion, that far from all available fishes and game-animals are caught or hunted by the Makuna. In fact, only a small portion of the great number of fish and bird species, and, among the mammals, the large group of small rodents, are actually utilized as food. Of some 45 game animals (birds, mammals and reptiles) considered edible (*wai buku*), only about 20 are hunted on a regular basis; and of some 40 species of fish considered edible (*wai*) only about 25 or 30 are caught regularly. The game-animals and fishes

listed in table 1, and their relative economic importance partially shown in table 2, thus give a fairly representative picture of Makuna fishing and hunting in general.

#### Work efforts and the performance of domestic groups

In contrast to the monotonous daily routine of the women, the men's fishing and hunting activities are discontinuous and irregular. The individual efforts vary with success and environmental conditions, as well as with the economic responsibilities of the producers. They are also highly influenced by a series of cultural rules and beliefs concerning animal food consumption and production. Periods of relatively regular fishing and hunting efforts are interrupted by large-scale rituals, or by other, mostly seasonal, full-time labours like clearing and cutting forest for the gardens, building or repairing the house, thatching or making canoes. Visits and entertainment of visitors take up a great portion of time, especially in the large malocas of prestigious headmen. Periods of intense hunting and fishing are usually followed by periods of rest or less intense efforts. Excluding extended trips over two or more successive days, fishing and hunting trips range between 1-16 hours, usually falling between 2-4 hours. In periods of intense fishing and hunting, it is common that a man makes two trips per day. The net result of this irregularity in fishing and hunting, is an extremely fluctuating productive pattern.

For the domestic group as a whole the pattern of animal food production is less irregular. When one man is resting, working on his canoe, or repairing his hunting gear, another man is out hunting or fishing. On an average, animal food from hunting and fishing is produced in the house 3 out of 4 days. Productive patterns and individual efforts also vary with the economic strength of the whole domestic group. Makuna domestic groups fluctuate a great deal in size and composition, although the general structure of the group is permanent. The economic strength of domestic groups (measured as the ratio between producers and consumers; see table 5) consequently varies between houses at any point in time and within the house over time. The net effect of these fluctuations, however, seems to be to produce domestic groups, in which the economic strength approaches a mean value (around 5 consumers per producer). Economically weak groups are those which permanently or temporarily fail to produce their own livelihood, and therefore entirely or partially depend on stronger groups. Economically strong groups are only potentially strong, that is, their potential capacity is only partially utilized for their own economic benefit: they constantly produce for weaker households, dependent guests and visitors. Furthermore, in strong groups a considerable amount of time and effort is diverted from subsistence activities and channelled into political activities. The ambitious headmen of strong domestic groups attract most visitors and guests, and give most ritual dance festivals. The most affluent domestic groups in terms of Makuna economy are the middle-sized groups, strong enough to support themselves, but not sufficiently strong to engage in political competition; that is, groups in which the objectives of productive efforts are kept within the subsistence sphere rather than beyond it.

Table 5 is an attempt to estimate the work efforts in fishing and hunting in a relatively strong and large domestic group of the mainstream region. During 5 periods of totally 62 days, including both the dry and the wet season, the mean size of the group varied between 12.5-18.5 members, and the economic strength between 5-3.4 consumers per producer. Each worker spends between 8-25 hours per week in fishing and hunting, with an average of 17.7 (hours per week). During the whole period, a total of 110 man-days were spent in fishing and hunting, and an equal number of man-days were unproductive in terms of animal food production. Of the 110 productive man-days, 87 were spent on shorter fishing and hunting trips, while 23 were spent on long trips over two or more successive days. Of the 110 unproductive man-days, 41 were spent in other fulltime labours like cutting or clearing forest, gathering forest-fruits, thatching the house etc.; 39 days were spent in rest<sup>67</sup> and 30 in ritual dance festivals.

Table 5  
WORK EFFORT IN FISHING AND HUNTING (adapted from Lee, 1969)  
House in mainstream region, 1972

(1) Period	(2) mean group-size	(3) economic strength	(4) "workers" man-days of consumption	(5) man-days of fishing and hunting ("work")		(6) man-days of no fishing and hunting			(7) "work"-week per "worker" (workdays/week)	(8) "work"-day per "worker" (hours/workday)
				total	extended trips	total	rest	other labour		
I 10 days (febr) (12-13)	12.5	4.6	27	19	4	15	8	4	4.9	5.1
II 16 days (march) (12-16)	14.1	5.0	44	25	-	25	19	8	3.9	4.0
III 19 days (may-june) (13-17)	15.1	4.0	73	38	19	19	35	9	3.7	6.5
IV 8 days (june-july) (17-20)	18.5	3.4	44	17	-	17	27	10	2.7	3.1
V 9 days (oct-nov) (12-14)	13.6	3.8	32	11	-	11	21	8	2.4	3.4
totals 62 days	14.6	4.2	220	110	23	87	110	39	3.7	4.8

key: (1) Periods: I (18.2-27.2); II (3.3-18.3); III (27.5-14.6); IV (30.6-9.7); V (25.10-4.11).  
 (3) Economic strength = the ratio between consumers and workers in the domestic group.  
 workers = effective animal food producers = adult males (15-45 years).  
 (5) Extended trips = fishing and hunting trips over 2 or more successive days;  
 (work effort here calculated as 10 hours/day).  
 (7) Calculated number of days spent in fishing and hunting per week and worker  
 (8) Average time spent in fishing and hunting per workday and worker

The conclusion is, that each adult man supports an average of 4.2 dependants (women; old men and children; see table 5) on 2.5 hours of fishing and hunting per day. However, it is necessary to have in mind the following facts: firstly that the figures in the table only refer to fishing and hunting and not to the total subsistence effort. Thus gathering and all agricultural work is excluded, as is the time spent in necessary repair and manufacture of hunting and fishing equipment. Secondly, other members of the domestic group than those here classified as workers, i.e. adult males, are partially productive in terms of animal food production: young boys, old men and occasionally women provide a good portion of fish and *wai lia*.

Some further comments should be added to the table. The period of 8 days (IV) is a period of intense work in clearing and cutting forest for the gardens. Adult males from neighbouring houses are present to help in the cutting. During this time one of the adult but unmarried members of the house was allocated the responsibility for the animal food production. The house thus was big and strong enough to allow a temporary social division of labour.

In general the house in question showed a wide variation in productivity between its members. By far the most hardworking man was the headman (c:a 40 years old) while visitors and guests worked a minimum. The mean work-day varied from 3.3 hours per day for the headman to 1.3 hours per day for a long time visitor. The tendency is that the headman and the adult males of his nuclear family (the "focal members") work harder than the "peripheral members" and guests, and that the members with greater economic responsibility work more than those with little economic responsibility. It is the economic correlate of the headman's political position that he shall maintain and ultimately be responsible for the well-being of the members and guests of his house. Related to this general tendency is the fact that the actual animal food production was limited by a scarcity in critical means of production. In this large house the number of canoes and shot guns was always low in relation to potential producers, and the focal members were rather better provided than peripheral members and visitors.

In a smaller house of average economic strength in the headwater region, the individual work efforts measured in mean work input are not significantly different. However, the total pattern of animal food production takes a different form. As a rule, fishing and hunting is not as much interrupted by visits and ritual festivals here. Extended fishing and hunting trips are rare. As a consequence the productive rhythm is more even. But, on the other hand, collective and large scale works like forest-clearing or house-construction are more often interrupted by subsistence efforts and consequently take longer to complete than in bigger and stronger domestic groups. In a weaker and smaller house a temporary social division of labour is not feasible.

#### Food and consumption

To be considered a real meal among the Makuna, it must include both animal and plant food, i.e. fish or meat and cassava bread (*nahu*). Other plant food is often added to the meal, mixed with the fish or meat. Various drinks are derived from the manioc, often mixed with fruits. The total number of plant foods comprises some 20 cultivated crops and at least as many wild fruits, berries, nuts and seeds. The animal foods comprise snails, shrimps, insects (caterpillars, ants, termites), amphibians and reptiles (turtles, caymans, lizards and some snakes), excluding the fishes, birds and mammals already mentioned. However, in terms of species, far from all available faunal resources are utilized as food. Diet selectivity is, as noted above, rather great, which can be taken as an indication of relative ease of subsistence (comp. Lee, 1975). Carnivores, scavengers, and a number of other animals are excluded from the diet on cultural grounds. A fundamental distinction is made between "food for men" (*masa bare*) and "man eaters" (*masa barí masa*), like anacondas, jaguars and *pirañas*, which are not considered as food. Cassava bread is eaten regularly every day. The supply is rich and varies little from day to day.

The supply of fish and meat, on the other hand, fluctuates a great deal. When the fish- and meat-supply is scarce, the Makuna temporarily rely on gathering of insects, nuts, berries and seeds. As a rule, the portion of plant food (i.e. manioc) in the diet is considerably larger by weight than the portion of animal food.

The daily consumption of fish and meat is directly dependent on the daily efforts of the producers. Storing is difficult in the hot and humid climate. The only method of storing meat and fish known to the Makuna, is smoking. Animal food is thus rarely kept or used for more than two days. Occasional abundance is immediately distributed within or, less frequently, between domestic groups. Makuna economy is characterized by an ideal of generalized reciprocity within the domestic group, and balanced reciprocity between them.

As a rule animal food supply is most regular and sharing most generous in houses approaching the mean size and strength. In larger, potentially stronger, as well as in weak houses, food supply appears scarcer and food sharing less generous. It is an interesting paradox that the larger, politically ambitious houses are characterized by periods of relative scarcity and restricted distribution of ordinary food, on one hand, and abundance and generous distribution of ritual food (beer, coca and snuff), on the other, while the reverse is true for the middle size groups of mean strength.

However, my overall impression is that the Makuna have a rich, well-balanced and nutritious diet. Perhaps a good indication of this is that I lived in two traditional Makuna houses for about 16 months, subsisting almost exclusively on the native diet. I experienced no seasonal period of hunger or shortage of food, and I did not show any apparent symptoms of malnutrition or deficiencies, and as far as I can judge, neither did the Makuna. I was, on the contrary, constantly impressed by the good health and strong physique of the adult Makuna.

The conclusion, then, is that the Makuna men, with a rather small effort, produce sufficient food to support, not only themselves and their families, but also additional relatives and guests (including anthropologists). Diagram 1 (A and B) is an attempt to substantiate these statements with respect to the animal food supply. Though the figures are rough estimates, I believe that the general pattern is valid. The supply of animal food fluctuates considerably over time, and more so in a large than in a smaller, but viable, domestic group. The total average catch of fish and game per day and adult is, however, approximately the same in the two groups examined. It is also evident from the diagram that the food supply varies with the seasons. Fish is exceptionally abundant and easy to catch in the beginning of the short wet season in both regions. During this time fishing is more important than hunting (in terms of food returns) in both regions - even in the headwaters where otherwise hunting is the dominant male activity and source of food<sup>8</sup> (see diagram 1 A & B).

#### Eating rules and food restrictions

To the Makuna all food is considered potentially dangerous. Unrestricted eating causes illness. To avoid illness coming from eating, the Makuna must follow a complex set of eating rules determining when and what food can be eaten. These food restrictions accompany a Makuna throughout his life, and thus deeply affect food production and consumption. The eating rules are based on the relationship between food and eater; between what is eaten and who is the eater. Certain classes of food are prohibited to certain categories of eaters at certain times.

Food is basically classified according to two criteria; natural category (category of game, fish or plant) and method of preparation (cooked, smoked or spiced food)<sup>9</sup>. Each class of food is placed along various scales of increasing danger to the eater:

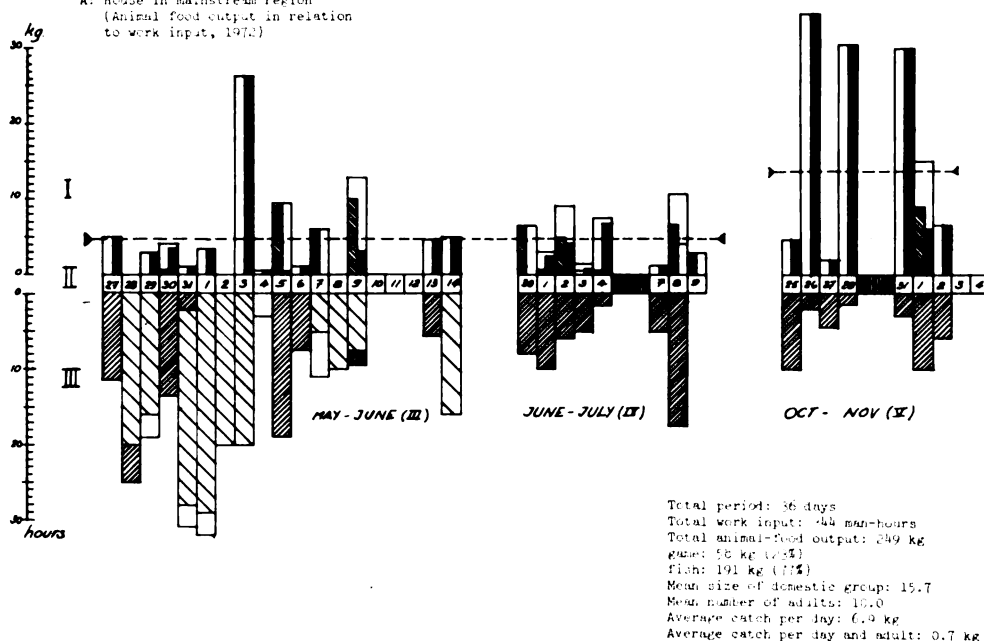
- (1) from raw plant food to cooked and smoked food;
- (2) from cold to hot food and drink;
- (3) from unsalted over peppered to salted food;



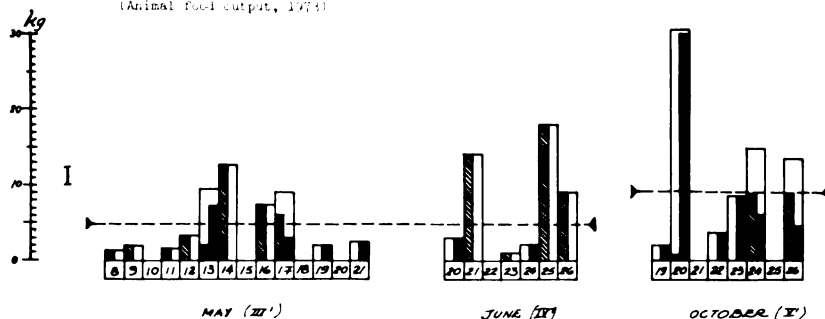
DIAGRAM 1

ANIMAL FOOD SUPPLY (adapted from Isacsson, 1976)

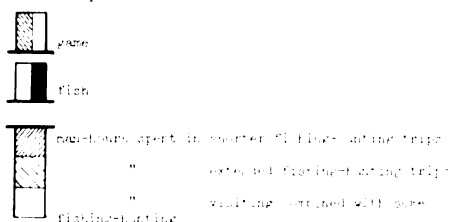
A: House in mainstream region  
(Animal food output in relation  
to work input, 1972)



B: House in headwater region  
(Animal food output, 1974)



KEY: I Animal food output, estimated in body weight per day. The estimation was made on the basis of a record of number and species of fish and game caught, using the values given in table 2.  
II Dates (skated numbers: days from which no information is available...)  
III Work input, estimated in total man-hours spent by adult men in fishing and hunting per day (compare table 1)



Total period: 29 days  
Total animal food output: 171 kg  
game: 96 kg (56%)  
fish: 75 kg (44%)  
Mean size of domestic group: 14.3  
Mean number of adults: 5.7  
Average catch per day: 5.9 kg  
Average catch per day and adult: 0.7 kg

(4) from "dry" to greasy food; and  
(5) from plant food in general over small fish to big fish and finally meat. On one hand food is believed to increase in danger as it is transformed from its raw or natural state to the prepared meal. On the other hand, animal is generally considered more harmful than plant food, and the danger increases with size, grease and amount of blood.

Eaters are classified according to their ritual status, which is basically determined by the stage of the individuals lifecycle. Each individual is subject to severe food restrictions at critical points in his or her lifecycle, and, to a lesser degree, during and after ritual participation. Each period of food restrictions (*bedi*) follows the same sequential pattern: first almost all food is prohibited, then the restrictions are gradually removed, starting with the least dangerous food and ending with the food considered most dangerous. The food restrictions are removed by blessing each class of food. The food blessing (*bare keare*), which involves magical blowing and chanting, is done by an adult or old man. The length of this sequence is individual but generally varies from a few days, as in the case of adult men after ritual dances and the birth of a child, to 2-3 years, as in the case of a newborn child and initiate.

In sum, big fish and meat from big game, as well as smoked, salted and greasy food are the last to be blessed during periods of food restrictions, and are prohibited to small children (under the age of 4), initiates, pregnant women, recent parents and participants in rituals. As every domestic group at any point in time is likely to contain members who are subject to food restrictions of some kind, it means, in the daily life of the Makuna, that the domestic group has to provide a wide variety of food to its members; food that according to the eating rules corresponds to the different categories of eaters. Thus, for example, when there is plenty of meat in the house after a successful hunt it is probable that only a few individuals are allowed to eat it. In spite of the temporary surplus, some men have to set off to catch sardinas for the children, or perhaps some particular species of fish for the women.

#### Hunting magic and cosmology

The Makuna believe that the success of fishing and hunting may be improved by magical means. However, fishing and hunting magic may not be utilized in the daily fishing and hunting. In the every-day production for livelihood the men have to rely on their own skill and effort. Fishing and hunting magic may be used in connection with large-scale rituals when a surplus of fish and meat is to be produced and redistributed between several participating houses and households.

Fishing and hunting magic is essentially similar. Here is a brief outline of the hunting magic<sup>10</sup>. It consists of two phases: the magical activities before the actual hunting, and the magic performed immediately before consuming the meat of the slain animal. During both phases the shaman (*kumu*) plays an important role. In the first phase the shaman blows and chants over gourds of coca and tobacco-powder, bees' wax and red paint - all powerful magical instruments. In the chant the shaman asks the Master of the animals (*wai masu*) for fruits. The fruit stands for game animals. The shamanized coca, tobacco and red paint are given to the hunter, who is now supposed to kill lots of game without effort. But what he kills is in fact a gift from the Master of the animals; a gift that has to be reciprocated. In the second phase the shaman blows and chants again over coca and tobacco powder.<sup>11</sup> This magical act is called "to give back what was given" (*huda kware*). In the chanting the shaman gives back fruits to the Master of the animals. The fruit now stands for the souls (*asi*) of the killed animals. The Makuna say that the shaman sends back what he took. "It is like giving thanks. We don't see anything, but the shaman sees. If the shaman does not send back the souls of the dead animals to their house (*suari wi*), the meat will cause harm, and the people who eat it will be sick." Even the old men, who know all this magic, are not supposed to use it other than before the large festivals. The Makuna believe that the individuals

who do use the magic to produce a surplus for themselves will be punished by the Master of the animals himself, and will seriously sicken and die.

The important features of Makuna fishing and hunting magic are, first, that it is used only at certain ritual occasions when large quantities of fish and meat are produced and redistributed, and, secondly, that, when it is used, it takes the form of an exchange between men and animals, mediated by the shaman and the Master of the animals.

These features are intimately connected with other properties of Makuna society and culture. Indeed the fishing and hunting magic forms part of a wider and coherent economic ideology; it constitutes a compressed expression of the entire Makuna worldview; their conception of the world and man's place in it.

The prohibition against using magic in the daily fishing and hunting may be seen as a symbolic statement making clear to the Makuna that it is wrong to produce individual surplus, i.e. to produce more fish and meat than you actually need. And the use of fishing and hunting magic in connection with rituals of food exchange is similarly a symbolic statement to the effect that surplus production is only permissible when it is distributed between domestic groups in a ritual context; i.e. when it is for the good of society. The form and content of the magic itself implies that the relationship between men and game animals is modelled on the reciprocity relationship that ideally guides the relationship between social and domestic groups. When the hunter slays a prey animal before a festival he is actually pursuing a transaction between men and animals initiated by the shaman through magic.

The rationale behind these magical practices and notions is a conception of the world as a form of cosmic society in which all living beings are related to each other. In this sense the relationship between men and animals is analogous to the relationship between different categories of men; a relationship of mutual interdependence. And as the relationship between social groups is characterized by reciprocity, so is the relationship between men and animals. The analogy between the men-animal or hunter-prey relationship, on one hand, and the relationship between different social groups, on the other, appears on the social level in a different shape. Marriage among the Makuna ideally takes the form of bride capture, which itself is a ritual hunt where the woman is the prey. But the bride capture is just a part of a whole series of transactions between social groups, in which women are given and taken in a system of restricted exchange (Lévi-Strauss 1969), and goods are circulated according to the principle of balanced reciprocity (Sahlins 1974:5).

Hunting and marrying are thus, in a sense, symbolically identified: the hunter is to his prey as the bride capturer to his bride, and both hunting and marrying are expressions of a fundamental structural principle in Makuna society; the principle of restricted exchange. It is in this light, I suggest, that we must understand another analogy: the analogy between eating and marrying, or rather, between the eating rules and marriage rules. Both are formulated with respect to the symbolically analogous relationship between categories of eaters and food, on one hand, and men and women, on the other; and both sets of rules restrict the use of fundamental values and resources among the Makuna: game and fish, on one hand, and women, on the other.

#### Discussion and conclusions

The data presented above can be interpreted in many ways. I will here briefly discuss two possible interpretations, which, if they are correct, together explain certain features of the Makuna economy and culture. They also allow me to draw some general conclusions about the relationship between economy, ideology and ecological adaptation in the northwest Amazon. One way of interpreting the data refers to the general economic structure of Makuna society, and takes as its point of departure the concept of the domestic mode of production (Sahlins, 1974); the other refers to the particular form and ideological content of the Makuna economy, and takes as its point of departure the concept of cultural adaptation to a specific ecological setting (see e.g. Netting, 1968).

Fishing and hunting among the Makuna are characterized by underproduction (as the concept is used by Sahlins, 1974). Though the faunal resources are scarce and scattered, they do not seem to be fully exploited. The technical means of production are only partially utilized, and the available manpower is underused. Still the Makuna easily make their living.

The pattern of animal food production is discontinuous in space and time. The result is that every adult man spends an average of only 2.5 hours per day in fishing and hunting. In each house, particularly in the large ones, productivity varies considerably between different members of the domestic group. Unmarried men, peripheral members and guests form a large and underused labour-force. In the large houses also certain critical means of production like shot-guns and canoes tend to be scarce in relation to available producers, implying that a considerable productive potential is unrealized. Fishing and hunting efforts tend to relax in areas and periods of relative abundance. Only a small portion of the known fish catching methods are thus actually used in the mainstream area, where the fish resources are richer than in the headwaters. This is of significance in a comparative context: in neighbouring areas where population density is much higher than in the Komeña area (for example, along the Papurí and Cuduaryari rivers), a number of other and more productive fishing methods are used (comp. Goldman, 1963).

In the wider context of Makuna subsistence economy, this tendency of underproduction in fishing and hunting has its counterpart in the system of swidden agriculture. As a form of agriculture, the Makuna system of shifting cultivation is well adapted to the poor soils and extreme climatic conditions of the tropical forest<sup>12</sup>. But this agricultural potential is not fully utilized by the Makuna. In fact, it has been convincingly argued for the Amazonian systems of shifting cultivation in general that they could produce a yearly surplus and support permanent and much larger settlements than they actually do (Carneiro 1964, 1973). It is the complex interaction between social, economic and political forces, rather than environmental and technical conditions alone, that inhibits the development of the productive forces. Clearly, the Makuna do not exploit their full economic possibilities. The driving force of their economy is the modest objective to produce sufficient, rather than as much as possible. These fundamental features of Makuna economy are shared by all genuine subsistence economies, organized around domestic groups and kinship relations.

In conclusion, the Makuna economy represents a particular form of a general and profound economic structure, which Sahlins has called the domestic mode of production. Centered in the domestic group, the domestic mode of production is characterized by a simple technology, a division of labour along sex and age lines, undifferentiated access to basic natural resources and sharing of food within the domestic group. It aims at production for livelihood rather than surplus production, and tends towards under-production rather than maximal utilization of resources. If surplus production is defined as output above the producers requirements, the domestic mode of production is not organized for it; indeed it is intrinsically an anti-surplus system (Sahlins 1974).

The general economic structure underlying the Makuna society is expressed in, and consolidated by, an economic ideology. The Makuna system of eating rules and food restrictions has the combined effect that the total exploitation of natural resources is reduced, and that the pressure on food sources is highly differentiated (the "diversity index of exploitation" is high). The cosmological beliefs that underlie the fishing and hunting magic express deeply rooted norms in Makuna society; norms that condemn individual surplus production, and work for equality and reciprocity between men, and the maintenance of the total ecological balance<sup>13</sup>. A world-view where game animals and fish in certain respects are symbolically identified with human beings, indeed counteracts any tendency towards abuse or overexploitation of the faunal resources.

My second conclusion, is that in one sense the system of eating rules and food restrictions, along with the magical conceptions related to fishing and

hunting, may be interpreted as the ideological dimension of the general structure of the Makuna economy. If the domestic mode of production is an anti-surplus system, the Makuna fishing and hunting magic is an anti-surplus ideology. And if the domestic mode of production implies underproduction, the Makuna economic ideology motivates it.

Finally, shifting the analytical perspective from the general to the particular, the actual economic organization and its ideological implications and elaborations among the Makuna, must be understood against the background of a particular ecological setting. In the interfluvial area of the northwest Amazon, land is abundant, but soils are poor and faunal resources relatively meagre. The carrying capacity of the land is defined in terms of the conservation of the scarce and scattered wild protein sources, rather than in terms of the access to cultivable land (comp. Reichel-Dolmatoff, 1976). In this light, fishing and hunting and associated cultural rules and beliefs among the Makuna form part of an integral system of food production, developed in response to, and as the result of, a long term and specific cultural adaptation to the tropical forest environment.

#### Notes

1. Compare the distinction that Conklin (1957) makes between integral and partial systems of shifting cultivation. The former type refers to agricultural systems highly integrated within a given socio-cultural matrix: "a traditional, year-round, community wide, largely self-contained and ritually sanctioned way of life" (p. 2).
2. It has been repeatedly demonstrated that the tropical forest is unfavourable as hunting territory (see for example Lathrap 1970, 1975).
3. Migrating fishes (f.ex. *matu baka*, *uhuga* and *kuliri*) are seasonally abundant, and fruit-eating animals (like f.ex. monkeys and toucans) are particularly accessible during the fruiting season (April-June).
4. The terminology used for fishing equipment and fishing methods is taken from von Brandt (1972).
5. Goldman (1948) identified at least 100 species of fish among the Cubeo of the Cuduyari river, a northern tributary to the Vaupés river.
6. By "rest" is here meant not only plain rest and sleep, but also the preparations for ritual dances, the collecting of coca leaves, the preparation of coca-powder, the entertainment of visitors and guests, etc.
7. Although infant mortality probably is rather high, many adults reach old age (I estimate several men and women to be around 60 or more). Another striking fact is that most adult Indians of the whole Pirá-Paraná region have very bad teeth.
8. Three catches of *kuliri* (*Pseudoplatystoma*) in the mainstream region, and one in the headwater region, account for the large portion of fish in the animal food diet during October.
9. Besides this elementary system of food classification there are other, shamanistic, systems. One way of classifying food is, thus, according to what illness it is supposed to cause. Another is according to the methods of catch; by what means animal or fish are killed or caught.
10. The description is essentially based on an interview with a Makuna informant. The sentences within quotation-marks are direct translations of expressions used by the informant.
11. Possibly the shaman also blows over red paint and bees' wax, and, immediately before eating it, over the prepared meat itself.
12. The Makuna system of shifting cultivation is rather typical for the north-west Amazon as a whole. As an agro-ecosystem it is similar to systems of shifting cultivation practiced by primitive cultivators in tropical regions generally (see f.ex. Carneiro 1973, Geertz 1963, Meggers 1971, Sahlins 1974).
13. In a different way, but to the same effect, this has been well demonstrated for the Desana (Vaupés) by Reichel-Dolmatoff in his thought-provoking article "Cosmology as Ecological Analysis: A view from the Rainforest" (1976).

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THE TOBACCO FROM NIÑO KORIN:  
IDENTIFICATION OF NICOTINE IN A BOLIVIAN  
ARCHAEOLOGICAL COLLECTION

by

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INTRODUCTION

The archaeological find from Niño Korin in the Province of Saavedra, Department of La Paz, Bolivia, (described in vol. 32 of the Gothenburg Ethnographical Museum's periodic publication *Etnologiska Studier* as collection 70.19)(Wassén, 1972, and papers by other authors in the same volume), is of the utmost importance for our knowledge of a pre-Columbian culture of the Central Andes. The reasons for this are threefold: The collection has been C<sup>14</sup> dated to Classic Tiahuanaco; the objects are, in spite of the fact that preservation is poor in the highland, of an unexpectedly good quality; the components of the collection must clearly be linked with a medicine man's specialized equipment. The latter circumstance is even more important since Niño Korin is located in the geographical habitat of the travelling herbalists and vendors called *callahuayas*, evidently functioning as *curanderos* well before Inca times (Wassén, 1972, pp. 15-18).

As has been documented in the description of the collection, several bundles of flattened leaves of *Ilex Guayusa* were found (Wassén, 1972, pp. 18-21; and Schultes, 1972). Another important component of plant material was a portion of mainly herbaceous fragments found in a skin pouch (collection number 70.19.9a-b, Fig. 1). It was possible for Dr. Wolmar E. Bondeson to conclude that the material in the pouch consisted mainly of stem parts of a *Nicotiana* species (Bondeson, 1972), but he had to leave as an open question if "a race of *Nicotiana rustica* L. was the kind of plant from which the tomb material once was gathered", or if the plant "actually can be found among the now living races of *Nicotiana* species" (Bondeson, 1972, p. 183).

ARCHAEOLOGICAL SAMPLES OF *NICOTIANA*

With an age of about 1600 years the tobacco from Niño Korin seems among the oldest of until now published finds from South America. An archaeological find of *Nicotiana glauca* fragments of leaves has been reported by Avendaño and Coelho (1972/1973). This tobacco was found together with other vegetable material in the interior of a cranium (number 1 of eleven located and ceremonially placed) undoubtedly from the Nasca culture of Valle de Chaviña, Peru. The botanical determination was performed by the late Dr. Juana G. Infantes Vera of the Botanical Department of the National University of San Marcos at Lima. The C<sup>14</sup> date for this important find of tobacco from the Nasca culture has been given as 450 - 70 A.D., the tobacco thus being only slightly younger or perhaps contemporaneous with the material from Niño Korin (Avendaño and Coelho, 1972/1973, pp. 109, 115, and 142).

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Archaeological tobacco samples (1300 years old) have also been reported from a site of Basketmaker III period in North-Eastern Arizona (Jones & Morris, 1960; and Morris & Jones, 1962). In a pulverized plant material from this site, *Nicotiana attenuata* was identified and this material gave positive alkaloid reactions (Raffauf & Morris, 1960). Scrapings from pipes of stone and clay, also found in this site, were examined by Johnson *et al.* (1959) and chromatographic analysis revealed nicotine and nicotinic acid.

We now report the results of our phytochemical analysis of the tobacco from Niño Korin.

## MATERIALS AND METHODS

**Specimen.** The sample of plant material used in this study consisted mainly of herbaceous stem fragments (collection number 1970.19.9b of the Gothenburg Ethnographical Museum, Gothenburg, Sweden). In an earlier micromorphological study, Bondeson (1972) concluded that this material originated from a species of *Nicotiana* (Solanaceae).

**Isolation of alkaloids.** The plant material (150 mg) was powdered in mortar and treated with a 1 M solution of sodium carbonate (2 ml) and chloroform (6 ml). The mixture was stirred with diatomaceous earth (2 g) (Celite 545, Kebo, Stockholm) and packed in a glass column (8 x 180 mm). The alkaloids were eluted with chloroform (100 ml; flow rate 1 ml per min). The eluate was evaporated to dryness to give the crude alkaloids (3 mg; 2%). The alkaloid fraction was dissolved in a small volume of absolute ethanol and used for alkaloid tests with Dragendorff's reagent (positive reaction) and mass fragmentography.

**Mass fragmentography.** Samples were injected into an LKB Model 9000 gas chromatograph - mass spectrometer equipped with a glass column (1.7 m, i.d. 1 mm) packed with 8% Carbowax 20 M (2% KOH) on Gas Chrom Q (100/120 mesh): helium carrier gas, 30 ml/min; injection port, 220°C, column oven, 130°C; separator, 255°C. The accelerating voltage was adjusted so that m/e 84 was brought into focus and recorded. In subsequent runs, m/e 105, 119, 133 were also recorded.

## RESULTS AND DISCUSSION

The basic fraction obtained from the 1600 years old tobacco sample gave a positive reaction with Dragendorff's alkaloid reagent (Raffauf, 1962). Gas chromatography revealed no peak corresponding to nicotine. Utilizing the more sensitive technique of mass fragmentography (Holmstedt & Palmér, 1973), we were nevertheless able to show the presence of trace amounts of nicotine in the alkaloid fraction. When the mass spectrometer was set to record m/e 84 (the base peak of nicotine), a peak of the same retention time as authentic nicotine was obtained (Fig. 2).

Three more ions were then selected for recording (m/e 105, 119, 133). Again, the retention time and the relative intensities of the peaks observed were identical to those of authentic nicotine. Anabasine has also been found in tobacco, and this compound has the same base peak and molecular ion as nicotine (Pilotti *et al.*, 1976). However, anabasine has a different retention time from that of nicotine and also differs in the intensity of some mass fragments (notably m/e 105). No evidence for its presence was obtained. The identification of nicotine supports Bondeson's conclusion that the botanical source of the tomb material was a species of *Nicotiana* (Bondeson, 1972).

The leaves of *Ilex Guayusa*, found in the Niño Korin tomb and C<sup>14</sup> dated to A.D. 375, have earlier been analyzed for alkaloids and found to still contain caffeine (Holmstedt & Lindgren, 1972). Mescaline and some related tetrahydroisoquinoline alkaloids have recently been identified in a 1000 years old specimen of *Lophophora* from a rockshelter in Coahuila, Mexico (Bruhn *et al.*, 1977).

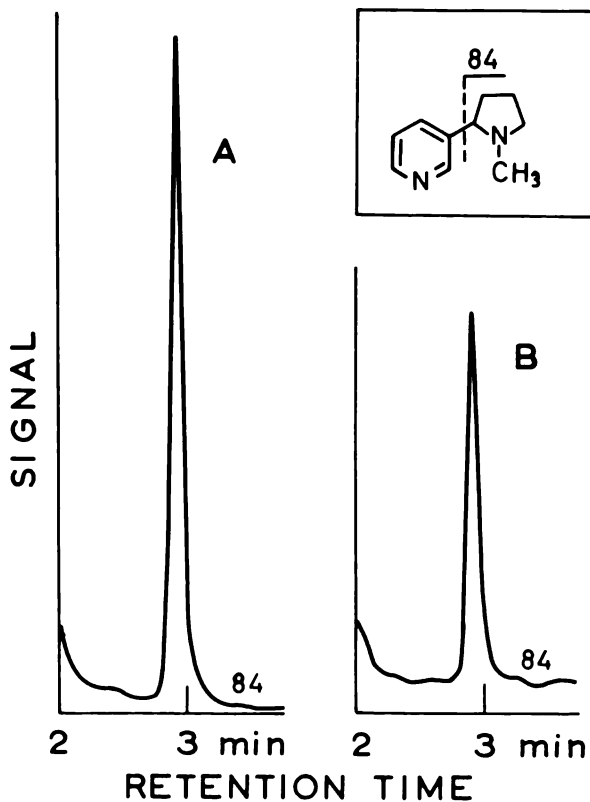


To the best of our knowledge, the presently studied tobacco sample is one of the oldest plant materials ever analysed for alkaloids with modern analytical methods. It is certainly of more than passing interest that so different alkaloid types, including nicotine, persist for such a long time in dry plant tissue.



Fig. 1 Skin pouch from Niño Korin. L. 17.5 cm.  
GEM, Coll. 70.19.9a.

Fig. 2 Mass fragmentograms of authentic nicotine (A) and the alkaloid fraction from the Niño Korin tobacco (B). The traces represent m/e 84, the base peak of nicotine (structure inserted).



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